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ABSTRACT

This report presents findings of a 5-year study on using professional development to extend gifted education pedagogy to regular education programs. Following an executive summary, the 15 chapters have the following titles and authors: (1) "Introduction and Overview of the 5-Year Study" (E. Jean Gubbins); (2) "Review of Literature" (Lori R. Maxfield and others); (3) "Survey Procedures" (Karen L. Westberg); (4) "Professional Development Survey Results" (Sunghee Park and Lisa Muller); (5) "Procedures for the Professional Development Module Pilot Study" (E. Jean Gubbins); (6) "Procedures for the Professional Development Module Study--Treatment, Sample, and Instrumentation" (E. Jean Gubbins); (7) "Professional Development Module--Quantitative Findings" (Sunghee Park); (8) "Case Description of One Site Involved in the Research" (Carolyn L. Tieso); (9) "Professional Development Module--Qualitative Findings from Teachers' Portfolios" (Susan T. Dinnocenti); (10) "Professional Development Module--Qualitative Findings from Liaisons' Logs" (Carol L. Tieso); (11) "Looking into the Classrooms" (Susan T. Dinnocenti); (12) "Qualitative Analysis of Three Sites" (Linda J. Emerick); (13) "Interviews of Liaisons and Teachers" (E. Jean Gubbins); (14) "Follow-up Questionnaire" (E. Jean Gubbins); and (15) "Discussion and Conclusions" (E. Jean Gubbins). Fifteen appendices provide additional details such as the schedule of assessments, questionnaires used with different groups, and samples of successful strategies used by teachers. (Contains 70 references.) (DB)

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THE NATIONAL RESEARCH CENTER ON THE GIFTED AND TALENTED

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Implementing a Professional Development Model Using Gifted Education Strategies With All Students

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ABSTRACT

Professional development is sometimes viewed as an event or a moment in time. Administrators or teachers, with varying levels of input into the decision-making process, often determine professional development plans and time is set aside either during or after school hours. Volumes have been written about professional development. The main or partial title of innumerable books, journals, videos, and conferences is *professional development*. Why does this topic gain so much attention? What are the best practices in professional development? What are the best methods of gaining access to professional development? What is an appropriate working definition? What are appropriate techniques of monitoring professional development? These questions and others were important to the design and development of our 5-year research study (1995-2000) of Maximizing the Effects of Professional Development Practices to Extend Gifted Education Pedagogy to Regular Education Programs. This study included multiple phases:

- creating and disseminating a national survey of professional development practices in gifted education,
- developing a series of modules (background information, transparencies, presenters' notes, articles, instruments, and videos) on conceptions of giftedness, curriculum modification, curriculum differentiation, and enrichment learning and teaching,
- piloting the professional development modules,
- collecting data from pilot study; conducting, interviews, and analyzing the effectiveness of the training materials,
- revising professional development modules,
- developing a series of instruments to assess the process and outcomes of the research study,
- training half of the local liaisons who would be working with a small group of classroom teachers to learn how to use the pedagogy of gifted education with their students,
- collecting data from instruments, logs, portfolios, and artifacts documenting the progress of students and teachers, and
- analyzing multiple forms of data using quantitative and qualitative techniques.

Detailed results of each phase of the research and development process are outlined in each chapter.

Implementing a Professional Development Model Using Gifted Education Strategies With All Students

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EXECUTIVE SUMMARY

Each year, millions, if not billions of dollars are spent providing professional development opportunities and buying instructional and curricular resources. Many teachers sit, listen, and simply return to their classrooms to do exactly the same things that they have done for years. Administrators and curriculum specialists often plan professional development activities, but little research exists on what it takes to make substantive change in teaching practices.

Why and how do teachers change their teaching practices? Our research team investigated not only what happens if you try to extend the pedagogy of gifted education to regular classrooms, but also, what happens when you attempt to upscale an innovation?". . . . [H]ow do you take an innovation—what appears to be a promising practice—and spread it more than 50 miles from the place where it originated?" (NAGC Conference Transcript, 1999, p. 7). That was our challenge in this research study. In this research monograph, we highlight the tasks and findings from the multi-stage quantitative and qualitative study. Second, we provide a brief explanation of the professional development module, followed by comments from liaisons and teachers as they reflected on the training process and materials. Detailed quantitative and qualitative results are available in this research monograph documenting all phases of the study.

Overview of the 5-year Research Study

The multi-stage quantitative and qualitative study required many tasks, including instrument development, field tests of assessment forms, pilot studies of professional development materials, interviews, observations, and focus groups. Highlights of tasks and key findings are outlined below:

1995-1996

Designed, implemented, and analyzed a national survey of professional development practices in gifted education. Created survey items that were examples of high quality, successful professional development practices. Analyzed national survey data from three samples: random sample of teachers across the country ($N = 1{,}231$), sample of educators associated with The National Research Center on the Gifted and Talented's (NRC/GT) Collaborative School Districts ($n = 100$), and sample of purchasers of the NRC/GT videotape modules ($n = 205$). Prepared article highlighting results of the national survey. Presented survey findings at local, national, regional, and international conferences and workshops. In general, the findings indicated that professional development opportunities in gifted education are limited in nature, degree, and scope (Westberg et al., 1998).

Key Findings

- A small proportion of school districts' total professional development dollars is spent on gifted education topics (5%).

- Gifted education specialists rarely provide professional development training to other faculty members within their school district.
- The majority of districts do not evaluate the impact of their professional development practices in gifted education on teachers and students.
- Peer coaching between classroom teachers and gifted education teachers is seldom (25%) or never (28%) used to provide professional development.

1996-1997

Designed, implemented, and analyzed field-test results (19 districts) of four professional development modules (i.e., complete training packages) on conceptions of giftedness, curriculum modification, curriculum differentiation, and enrichment learning and teaching.

Key Findings

- Trainers evaluated the professional development materials as high quality.
- Trainers requested more examples of strategies to help them with their coaching responsibilities.
- Trainers wanted samples of completed forms.
- Trainers recognized the reluctance to change teaching practices among some staff members.
- Trainers viewed administrative support as an important element to keep the focus of the innovation.

1997-1999

Redesigned the piloted professional development modules and created one, large module with all the training materials (background information on the NRC/GT, over 85 transparencies with accompanying scripts, videotapes, handbooks, and articles that extended discussions on the topics), which became known as the "BIG RED NOTEBOOK" (all but the NRC/GT videotapes and handbooks were in a 4-inch red notebook). Implemented a 2-year study of using gifted education strategies with all students in regular classrooms. Worked with 44 school districts. Delivered training to local elementary and middle school teachers by organizing a group of local liaisons. Organized comparison groups within the same districts, but not in the same schools, and the comparison group teachers continued with their normal classroom routines. Developed multiple documentation techniques including portfolios, anecdotal report forms, logs, and instruments. Developed instruments focusing on classroom practices, assumptions about giftedness, implementation strategies, students' activities, and stages of implementation of the innovation. Maintained written, e-mail, and telephone communications.

Key Findings

- Liaisons successfully adopted the training materials.
- Liaisons recognized the increase in their depth and breadth of knowledge about how to modify, differentiate, and enrich curriculum.
- Teachers appreciated opportunities to discuss their curricular approaches with the liaison and other teachers.
- Liaisons requested samples of completed forms that illustrated how other teachers changed their instructional and curricular approaches.
- Liaisons needed more examples to share with teachers as they addressed specific content areas in various grade levels.

1999-2000

Analyzed all quantitative and qualitative data from the 2-year intervention study. Prepared drafts of chapters for the technical monograph. Redesigned the professional development module based on the intervention study.

Key Findings

- Liaisons successfully used the NRC/GT professional development module with local teachers.
- Liaisons became local experts as a result of their knowledge and experiences with modifying, differentiating, and enriching curriculum.
- Liaisons recognized the need to differentiate training for local teachers. Just as the students were not all at the same level of expertise, neither were the teachers who agreed to participate in the intervention study.
- Teachers learned how to enhance or change some of their instructional and curricular strategies. Not all teachers were as successful with the strategies. Some persevered; others did not continue as participants.
- Teachers benefited from the long-term nature of the study.
- The learning curve for teachers and liaisons varied.
- Teachers responded positively to the strategies as they reflected on the positive responses of their students.
- Teachers and liaisons who were supported by their administrative teams found it easier to support the implementation of an innovation.
- Treatment Group teachers changed their classroom practices, as compared to comparison group teachers.
- Students who worked with treatment group teachers reported positive changes in their class activities.
- Teachers raised their level of expectations for student work. They recognized that students were ready for challenging work.
- Change is difficult and what teachers are comfortable with may not be the best approach.

Liaisons as Trainers

As liaisons prepared for the training of local teachers, they studied the professional development module described above. In essence, two interventions were occurring: training of liaisons and training of teachers who, in turn, worked with their students. Liaisons assumed a huge responsibility as local trainers. Even if they viewed themselves as minimally or highly experienced, they immediately recognized that they needed to review and study all materials intensively. One liaison said:

> I panicked. . . . We were in an unusual situation because I think all the other districts had one person, and ours—there were two, and that's another story. So, we did have the luxury of having each other, and we planned a time to sit down and go through the book . . . then decided we were going to have to meet again, and I think again and again. I think we met many hours trying to get ready. . . . (NAGC Conference Transcript, 1999, pp. 39-40)

The professional background of the liaisons varied. Some were quite familiar with identification, programming, and curriculum models in our field through formal coursework and years of experiences; others were self-taught and eager to learn more. One experienced liaison commented:

> I found that while we went into this very willing and ended it very willingly, . . . it was a learning curve for me, as well as for the participants. Having been in the field for quite awhile, I thought I knew everything in terms of the strategies. . . . But [not] actually delivering it in that kind of format. The materials in the book were rich. We now use them all the time with other training models and training sessions that we do in our school system. And so, the material was wonderful, but there was a lot of it. . . . I had to sit down and pour through the material, and organize it in a way that I thought was clear for the people on the receiving end. Because I believe teachers can be some of the hardest audience, you know. And so, I didn't feel comfortable getting up in front of the group unless I felt I really knew that material. (NAGC Conference Transcript, 1999, pp. 38-39)

Curriculum: Activities or Events

We knew from our earlier NRC/GT studies and the research conducted by others in the field of gifted and talented education that the academic needs of young people were not the cornerstone of planning and implementing curriculum. Oftentimes a series of activities or a collection of discrete skills served as lessons. One liaison shared the following reflection about what goes on in elementary schools:

> You are probably familiar with teachers who have units on the apple, watermelon, and the pumpkin. Do you know what I'm talking about? My biggest challenge was with the group of first grade teachers who . . . had their training in the spring, were determined they weren't really going to do any implementation until fall because you can't start anything new until you think about it over the summer, and start in September, okay? So, that was their mindset. They couldn't change direction in the middle of the year, or so they perceived. And so, when I went to work with the first grade teachers, their big overall unit of which they [included] everything—math, science, social studies, reading—revolved around the watermelon in September, and pumpkin in October and [apples in] November. And I'm not lying. It's a stretch of the imagination even to think it, but that's what it was. And so, I spent a lot of time meeting with . . . teachers. [The gifted teacher and I] were trying to get them to look at . . . big ideas. . . . [I]t was a real struggle for them. That was a whole new way of thinking. [The teachers needed to look] at modifying "their idea of curriculum." (NAGC Conference Transcript, 1999, p. 49)

When you think about how some teachers might approach curriculum, you understand how the notion of holidays, activities, worksheets, workbooks, and educational games can fill the hours of the school day. We needed to break down this mindset in some cases. In other cases, we needed to provide the rationale for upscaling the curriculum and include enough examples of how-to-do it; and in still other cases we just needed to help teachers critique the quality of their available instructional resources and develop high-quality alternatives. Therefore, professional development was the focus of our research. As noted in *National Excellence: A Case for Developing America's Talent*: "Teachers must receive better training in how to teach high-level curricula. They need support for providing instruction that challenges all students sufficiently. This will benefit not only students with outstanding talent but children at every academic level" (U.S. Department of Education, 1993, p. 3).

Curriculum: Critique and Creation

Liaisons were responsible for demonstrating a series of strategies often associated with the gifted education literature. Of course, these strategies did not necessarily originate in our field, but they have become part of the parlance for explaining why students need curricular options to meet their needs and challenge their talents and abilities. We asked liaisons to help teachers focus on the following questions for modifying, differentiating, and enriching the curriculum:

Curriculum Modification
What is the quality of the curriculum? Does it focus on big ideas or concepts? Is it repetitious? How can it be enhanced or improved?

Curriculum Differentiation
What are the academic needs of your students? How can you create or adapt curriculum opportunities to meet these needs?

Enrichment Learning and Teaching
What do students already know? What are their interests and talents? How can you use formal and informal assessment techniques to assess their knowledge and compact the curriculum? What types of replacement strategies are appropriate for students who have mastered the curriculum? How can you accelerate the content? How can you extend and enrich the curriculum?

Assessing Classroom Practices

Assessing classroom practices from a distance was quite a challenge. Paper instruments were the proxies for our "presence" in classrooms near and far. Since we could not and did not want to be on-site to observe and shape the intervention, we developed a wide variety of instruments that would hopefully elicit critical details documenting the implementation process. Our eyes and ears were the liaisons and teachers. Of course, we used additional data collection techniques to ensure that we captured as much information as possible, including frequent updates via phone calls, anecdotal reports, informal discussions at conferences and workshops, lesson plans, student products, and selected site visits towards the end of the intervention. Collectively, all of these data provided the "observation window" of the extent to which the pedagogy of gifted education can be used with all students.

Teacher Change

Analyzing the quality of their own teaching was critical to change and growth. It was important to ask questions such as: What do I do well? What needs to be improved? How do I improve my teaching ability? Obviously, teaching is both an art and a science. Sometimes teachers were overwhelmed with the new content and strategies, new models of teaching, or new assessment techniques. Metacognitive strategies that promoted reflection on teaching helped teachers understand the need for change. One liaison offered an explanation of the difference between the before and after of using the "BIG RED NOTEBOOK:"

> This is just a general before and after kind of a question with the teachers I worked with, but I think in general what you talked about—the big idea—understanding—

> they realized when they started to look at what they were teaching and how they were teaching and how they were going to change it for whatever method they had chosen—they had to reflect upon what it was they were teaching, and why they were teaching it. And I think that was a big before and after. I think they learned through that process that sometimes they were doing things that didn't have a great purpose or a great understanding behind it. And that creates that self-reflection, I think that was the biggest before and after overall. (NAGC Conference Transcript, 1999, pp. 49-50)

Emerick (1999) noted the difficulty in understanding teacher change and stated "some people have changed a little and some people have made a sea of change" (p. 7). Individuals involved in the innovation determined the extent of change. So many personal, motivational, and attitudinal variables affect the extent of their own change process. While admitting that the implementation process was "exhausting" and "too much,"

> [T]wo [teachers] stated emphatically that "the real difference . . . is looking at student work and seeing what students are getting out of it." One stated, "I'm really trying to work with different things. I've used things that I've developed . . . so I'm using those ideas and I'm broadening [them], too. . . ." (Emerick, 1999, p. 3)

Another teacher confirmed that she changed her approach to teaching. "I also have done lessons on goals, reaching goals, and what are goals, and how . . . obstacles get in the way of accomplishing goals" (NAGC Conference Transcript, 1999, p. 52). Projects, as a way of documenting what students have learned, have also changed—no more word searches, fill-in-the-blanks, or worksheets. Students were now engaged in hands-on activities that challenge their knowledge and increase the expectations for truly understanding and using new content and skills. Teachers recognized that students became more independent as learners, as they acquired data searching skills and techniques for posing questions and finding answers. One liaison offered the following comment about the students:

> As far as [the] students, it's made them become much more independent as learners, and it's given [them] many more choices. And what we expect the students to do to use higher level thinking skills, and make decisions—really the study teaches us to do the very same thinking. It's been quite an intellectual exercise for the teachers. (NAGC Conference Transcript, 1999, pp. 53-54)

One teacher devised a "mantra of change" by reviewing what she learned throughout the study and listing the types of strategies that would now be her approach to extending gifted education strategies to all students:

> I will continue to pretest and activate background knowledge before the start of every unit.
> I will continue to assess my students' interests as well as knowledge level.
> I will continue to assess my lessons for the following: Do products assignments differ? Do my work groups offer flexibility. . .? Do my students feel challenged by the material presented?
> I will continue to discuss, debate, gather differentiation ideas with co-workers. (Teacher #535) (Dinnocenti, 2001)

This study of gifted education strategies yielded a considerable amount of knowledge. Liaisons and teachers once again confirmed the tenet that change is a process that requires support, reflection, and human and material resources. It also requires an element that is not always obvious at first. Students' reactions to the innovation served as very strong motivators for teachers to stay with the change process and reflect on their approaches to content and instructional strategies.

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Implementing a Professional Development Model Using Gifted Education Strategies With All Students

CHAPTER 1: Introduction and Overview of the 5-Year Study

E. Jean Gubbins

> *Reforms don't spread in places where teachers do not have the capacity to implement them.*
> Linda Darling-Hammond, AERA (1998)

Professional development is sometimes viewed as an event or a moment in time. Administrators or teachers, with varying levels of input into the decision-making process, often determine professional development plans. Time is set aside either during or after school hours. Volumes have been written about professional development. The main or partial title of innumerable books, journals, videos, and conferences is *professional development.* Why does this topic gain so much attention? What are the best practices in professional development? What are the best methods of gaining access to professional development? What is an appropriate working definition? What are appropriate techniques of monitoring professional development? These questions and others were important to the design and development of our 5-year research study of Maximizing the Effects of Professional Development Practices to Extend Gifted Education Pedagogy to Regular Education Programs.

Purpose of Professional Development

Obviously, effective professional development is not a "stand and deliver" approach to learning. It is not something that is done to you. It is an interactive process designed to prepare and support educators throughout their careers.

> High quality professional development . . . refers to rigorous and relevant content, strategies, and organizational supports that ensure the preparation and career-long development of teachers and others whose competence, expectations and actions influence the teaching and learning environment. (U.S. Department of Education, n.d.)

Prior NRC/GT Research Efforts

Research studies conducted by the NRC/GT from 1990 to 1995 at the University of Connecticut served as the basis for designing this 5-year study of professional development. We used quantitative and qualitative single-year and multi-year methodologies to

- study classroom practices used with gifted and average achieving students. (Archambault et al., 1993)
- experiment with one approach to curriculum modification strategy known as curriculum compacting. (Reis et al., 1993)
- test approaches to embedding a specific set of thinking skills into the regular curriculum. (Burns, 1993)

- research the use of one gifted education strategy, namely enrichment clusters, with all students. (Reis, Gentry, & Park, 1995)
- observe successful classroom practices in meeting the needs of gifted and talented students in regular classrooms. (Westberg & Archambault, 1995)

Results from these studies and others conducted by the NRC/GT consortium (University of Connecticut, University of Georgia, University of Virginia, and Yale University, 1990-1995; University of Connecticut, City University of New York-City College, Stanford University, University of Virginia, and Yale University, 1995-2000) were also reviewed in light of the federal report, *National Excellence: A Case for Developing America's Talent* (U.S. Department of Education, 1993). One statement in particular from the *National Excellence Report* emphasized the critical role of professional development:

> Teachers must receive better training in how to teach high-level curricula. They need support for providing instruction that challenges all students sufficiently. This will benefit not only students with outstanding talent but children at every academic level. (U.S. Department of Education, 1993, p. 3)

We designed this 5-year study (1995-2000) to investigate professional development practices used across the country. A brief overview of the major tasks is provided. No comprehensive national study had focused on professional development practices and their impact on the pedagogy of educators and the services for gifted and talented students. Therefore, we designed a survey of professional development practices in gifted education, and we thought long and hard about the type of information that we wanted to know. We conducted a thorough review of the literature, attended conferences, convened groups of professionals with various prior experiences, and drafted potential survey items. We wanted to know the extent to which professional development was really tied to the overall visions of school districts.

During 1995-1996, we designed, piloted, and implemented the Professional Development Practices in Gifted Education Survey (see Chapter 3) to ascertain existing practices. We defined professional development as a "planned program of learning opportunities to improve the performance of the administrative and instructional staff" (The National Research Center on the Gifted and Talented, 1996). This definition was broad enough to include multiple professional development strategies such as:

- reading books and journals
- attending conferences, institutes, and workshops
- discussing educational issues with colleagues
- conducting workshops
- writing articles, chapters, and books
- implementing action research projects
- reflecting on courses, classes, or seminars
- viewing educational videotapes
- listening to professional development audiotapes

The national survey was administered to four groups:

- field-test sample of 182 districts from 4 states with and without mandates for identification and/or programming for gifted and talented students
- stratified random sample of approximately 3,000 districts throughout the country
- Collaborative School Districts (CSDs) associated with the NRC/GT ($N = 216$)

- individuals who purchased NRC/GT professional development modules ($N = 460$)

During 1996-1997, we created and piloted the effectiveness of four NRC/GT professional development modules (key findings from prior NRC/GT research studies, transparencies with scripts, articles, simulations, sample forms to implement and document strategies, related readings) focusing on the following topics:

1. Conceptions of Giftedness
2. Curriculum Modification
3. Curriculum Differentiation
4. Enrichment Learning and Teaching

We also included the following NRC/GT videotapes and handbooks developed as a result earlier intervention studies:

1. Curriculum Compacting: A Process for Modifying Curriculum for High Ability Students (Reis, Burns, & Renzulli, 1992)
2. The Explicit Teaching of Thinking Skills: A Six-Phase Model for Curriculum Development and Instruction (Burns, 1993)
3. Curricular Options for High-End Learning (Gavin et al., 1994)
4. Enrichment Clusters: Using High-End Learning to Develop Talents in all Students (Gentry, Reis, Renzulli, Moran, & Warren, 1995)

Following the quantitative and qualitative analyses of the professional development modules pilot study, we decided to use all the feedback from the participants and redesign the four modules into one. We created additional materials as needed and implemented the 2-year study (1997-1999) of extending gifted education pedagogy to all students by using the NRC/GT professional development module, accompanying videotapes and handbooks, instruments, and logs. The overall purpose of the professional development module was to provide local liaisons with a complete program to modifying, differentiating, and enriching the regular curriculum. Suggested strategies included the following:

- promoting the critical analysis of the quality, breadth, and depth of the existing curriculum;
- illustrating multiple approaches to creating curricular options to address the academic needs, talents, and abilities of students;
- offering an enrichment model to expand students' curricular involvement by eliminating mastered curriculum; increasing the content and challenge level of curricular materials; and
- providing interest-based opportunities to encourage the pursuit of investigations of real-world problems.

During the final year of the study (1999-2000), we reviewed and analyzed all of the quantitative and qualitative data from the multi-phase study of professional development practices.

Statement of the Problem

We learned from the NRC/GT Classroom Practices Survey (Archambault et al., 1993) that a surprisingly low percentage of elementary classroom teachers had participated in any professional development in meeting the needs of gifted students in their classrooms.

Sixty-one percent of public school classroom teachers and 54% of private school teachers who completed the Classroom Practices Survey reported that they had never had any training in meeting the needs of gifted students. Since there was no prior national research survey on professional development experiences relative to gifted education strategies, we did not know which types of professional development were routinely provided to classroom teachers at the elementary, middle, or high school levels. We did not know what teachers perceived to be effective at helping them to improve their own teaching practices relative to high ability and high achieving students. We also did not know if the needs of this group of students were ever considered in planning for professional development sessions or in the content presented in professional development programs across the country.

Why and how do teachers change their teaching practices? Each year, millions, if not billions of dollars are spent providing professional development opportunities and buying teaching resources for teachers across the country. Many teachers sit, listen, and simply return to their classrooms to do exactly the same things that they have done for years. District and building administrators and district curriculum specialists often plan professional development activities, and little research exists on what it takes to make substantive change in teaching practices and whether differences exist at various grade levels, types of schools and communities, and in various content areas about how to make change. The few studies that have been completed are often contradictory regarding procedures, but all have called for systemic changes. This 5-year study focused on two major questions:

1. To what extent could we use research-based training techniques, implementation handbooks, videotape modules, and multiple professional development methods throughout the country without direct involvement from the NRC/GT in delivering on-site training?
2. To what extent would gifted education pedagogy improve educational opportunities for all students, while simultaneously addressing the specific needs of gifted students?

CHAPTER 2: Review of Literature

Lori R. Maxfield
Sally M. Reis
Deborah E. Burns

> *Research consistently indicates that one-time, single session inservice presentations are ineffective. Staff development programs need to be on-going, involving long-term training efforts to be effective.*

Introduction

At a time when some research has demonstrated the benefits of new instructional practices on student learning, there is a greater need than ever before for effective professional development programs for teachers. High quality professional development programs are a central component of any attempt to reform and restructure schools.

As education is increasingly influenced by research results, so too must professional development. The success of these development programs "will be judged primarily not by how many teachers and administrators participate in staff development or how they perceive its value, but by whether it alters instructional behavior in a way that benefits students" (Sparks, D., 1994, p. 2). Guskey (1986) defines professional development as "an attempt to bring about change . . . in the classroom practices of teachers, change in their beliefs and attitudes, and change in the learning outcomes of students" (p. 5). Wall (1993) provided a similar definition of staff development: "Any in-service activities that can potentially increase an educator's effectiveness within the school system, and more specifically, any planned process of education or training which will benefit the teacher, student, and school system" (p. 4).

Joyce and Showers (1982) believe that several elements of teacher training are necessary to enable teachers to successfully implement new instructional practices. These include: the theoretical rationale behind the teaching method, observation of experts in practice, practice and feedback, and coaching teachers as they integrate the new teaching practices.

Coaching may be defined as "the provision of on-site, personal support and technical assistance for teachers" (Baker & Showers, 1984, p. 1). Joyce and Showers (1982) state that there are several functions of coaching including: companionship, technical feedback, adaptation to students, and personal facilitation. Joyce and Showers further stress that while observation of demonstration and practice with feedback are sufficient for most teachers to develop a new skill, this does not guarantee that they will use the newly developed skill regularly in their classroom. When the coaching component is added, however, most teachers will transfer the new practice into their daily teaching routine.

G. M. Sparks (1986) found peer observation to be more effective in staff development than the trainer-provided coaching strategy advocated by Joyce and Showers. Sparks investigated the relationship between types of inservice training activities and changes in teaching behavior. Three groups of teachers attended several workshops on effective teaching. Group I received no extra activities, Group II participated in peer observations, and the trainer coached Group III. Results indicated that peer observation activities were the most effective in changing teacher behavior. Sparks provided several reasons as to why the peer observation treatment may have proved superior. First, teachers rarely get to see each other in action. Just watching a colleague teach may be a powerful learning experience and allows one to pick up new ideas. Second, as peer observers were involved in the analysis and coding of behaviors, this may have helped them to analyze their own behavior and make effective changes in their teaching style. Sparks also believes that peer observations may have heightened the sense of trust among group members and contributed to the high morale that existed in Group II.

Guskey (1986), another leading researcher in the field of professional development, differs on perceptions of results of professional development. Whereas a current popular belief is that professional development programs result in a positive attitude among teachers which in turn results in teachers successfully implementing new educational practices, Guskey believes the opposite. He suggests that teachers' attitudes and beliefs are altered *after* implementing new practices and observing positive results with regard to student learning. Guskey cites the research of Crandall (1983) as supporting evidence of this model.

Guskey (1994) discusses the idea of finding an "optimal mix" with regard to staff development as discrepancies in the research demonstrate there is no "one right answer." He offers the following guidelines to achieve this "optimal mix": change is both an individual and organizational process; think big, but start small; work in teams to maintain support; include procedures for feedback on results; provide continued follow-up, support, and pressure; and integrate programs.

Hopkins' (1990) research further extends the work completed by Guskey. While Guskey argues that teacher commitment results from achieving competence, Hopkins believes the issue is more complex and that the prevailing school climate and the nature of a teacher's psychological state play a significant role in whether or not a professional development effort is successful. Hopkins concluded that the more self-actualizing the teacher is, the more he/she uses innovative educational ideas. The research of Showers, Joyce, and Bennett (1987) supports this conclusion. In Hopkins' study, teachers operating at a high psychological level of self-actualization used educational ideas at a rate four times greater than those teachers who were operating at a low level of psychological safety. Hopkins also found that implementation of educational ideas is considerably facilitated by an open, democratic school climate. Specific factors (Hopkins, 1990) related to school climate that had a positive effect on the implementation of new educational ideas include:

> 1. The self-determination of the organization provides it with capacity to deal with its environment.
> 2. Heads who are perceived as supportive figures are actively involved in the use process.
> 3. A high degree of internal communication provides the opportunity for staff to engage in frequent discussions about an innovation (thus increasing the possibility of its successful implementation).
> 4. Time and opportunity are provided for observation of others and for reflection of classroom practice.
> 5. Staff collaboration is a continuous process. In schools where a full contribution is expected from everyone, teachers find themselves developing policies and bearing some responsibility for their implementation. (p. 61)

Hopkins (1990) believes that change in teacher behavior is a result of a combination of individual motivation and school climate.

> Teachers at the level of self-actualization are stimulated by energizing schools, and in turn, add to the stimulation already present. However, a teacher at the level of psychological safety would be terribly threatened by such an energizing environment. At the other extreme, a self-actualizing individual who runs into a relatively dormant environment is likely to feel frustrated . . . . (p. 62)

Several research studies have provided similar results to Hopkins regarding school climate and the need for principal involvement (Kilgore, 1983; Sparks, G. M., 1983; Wall, 1993). Results of this research indicate that through casual conversations with teachers, principals can promote new educational practices. The report also stressed that principals need to be involved in the planning of inservice activities. Kilgore (1983) studied two principals participating in a professional development project, one principal stayed involved in the project the entire year, while the other principal dropped out. In the case where the principal stayed, the project was successful. In the other case, the project failed because the teachers refused to continue with the project after the principal left. Our experiences with the curriculum compacting research project (Reis et al., 1993) were similar. In one school where a favorite principal was transferred to a different school, difficulties arose with the staff. It was the only school involved in the compacting study in which implementation of the treatment became problematic.

Professional development components that are extremely important, beyond those already mentioned, include the following key components.

1. Teachers must be involved in professional development (Brown, Harvey, Kilgore, Losh, & Mortensen, 1985; Gordon, 1974; Smith, Allen, & Dreyer, 1982; Wall, 1993).
2. A needs assessment should be conducted prior to any professional development activity (Smith, Allen, & Dreyer, 1982; Wall, 1993).
3. Inservice should be done by local teachers, not outside personnel (Kilgore, 1980; Mertens, 1981).
4. Inservice should be conducted at a site within the district (Wall, 1993).
5. Inservice should be conducted on inservice days or during release time (Brown et al., 1985; Kilgore, 1983; Mertens, 1981; Wall, 1993).
6. Professional development needs to be on-going and long-term (Guskey, 1986; Maxfield, 2000; Mazzarella, 1980; McLaughlin & Marsh, 1978; Sparks, G. M., 1983).

Teacher Involvement

Although Showers, Joyce, and Bennett (1987) found otherwise, many researchers agree that one of the most important elements of professional development is the involvement of teachers in the planning stage. A study by Brown et al. (1985) that surveyed 2,172 teachers and administrators found that while administrators indicated teachers were involved in planning professional development nearly 90% of the time, only 29% of teachers felt they were involved in planning professional development activities. Smith, Allen, and Dreyer (1982), Gordon (1974) and Smoak (1981) concluded that teachers must be involved in planning professional development, as they are the ones who are aware of their needs. Beckner, DeGuire, Pederson, and Vattaka Vanich's (1983) research supports the findings of Smith et al. (1982) and Gordon (1974). In a 1983 study, they found significant differences in teacher perceived and administrator perceived needs for professional development. More than a third of the items perceived as important by teachers were not perceived as such by administrators. One way to involve teachers in professional development seems to be the creation of a professional development committee comprised of teachers and administrators. The most effective committees are those comprised of volunteer teachers and administrators (Wall, 1993).

Where, When, and Who

Showers et al. (1987) found that the where, when, and who of professional development have no effect on program success, the majority of researchers indicate otherwise. Research studies consistently indicate that the most desired location of inservice activities is in the school district at local school settings (Wall, 1993). Furthermore, research by Mertens (1981) and Brown et al. (1985) found that the best time to conduct professional development programs is during the school day—on inservice days or during release time. If professional development is conducted after school, on evenings, or on weekends, the school is sending the message that professional development is not important and that teachers should sacrifice their own time for inservice without pay (Kilgore, 1983). After school is the worst time for professional development because teachers are tired and often have other obligations. Mertens (1981) found that teachers would rather work on weekends or holidays than after school.

Often, an inservice session will consist of a "well-known educator arriving at a pre-specified time to talk on some subject of his or her interest but of interest to no one else" (Wall, 1993, p. 15). These speakers and other outside personnel are often met with resistance, which reinforces the need for teachers to be involved in the professional development planning. Kilgore (1980) and Mertens (1981) both concluded that local teachers are the best source of inservice.

Need for Continual Support and On-going Training

Research consistently indicates that one-time, single session inservice presentations are ineffective (Mazzarella, 1980; McLaughlin & Marsh, 1978; Sparks, D., 1994; Sparks, G. M., 1983). Staff development programs need to be on-going, involving long-term training efforts to be effective. G. M. Sparks (1983) suggested that a series of four to six, 3-hour workshops, spaced 1 or 2 weeks apart are most effective. Continued support and encouragement from principals, superintendents, and colleagues are also essential for teachers to succeed (Guskey, 1986; Guskey & Sparks, D., 1991).

As is clear in the research review on professional development, recent research expands the body of knowledge related to changing teachers' classroom practices. Unfortunately, this research indicates that classroom teachers have limited knowledge and training about meeting the needs of high ability students (Archambault et al., 1993). We believe that training can make a difference, but we have extremely limited evidence about this. Two studies (Reis et al. 1993; Hanson & Feldhusen, 1994) provide positive evidence about the impact of training. Hanson and Feldhusen's study indicated that teachers trained in gifted education demonstrated greater teaching skills and more positive classroom climate in classes of gifted students than did teachers who did not receive training. The curriculum compacting study (Reis et al.) also provided evidence that with as little as one hour of training and accompanying print materials, teachers could begin to provide and identify the need for differentiation for gifted students. However both of these studies focus on changing practices used with gifted students. Little research has focused on the impact of professional development in gifted education on teaching practices (e.g., modification, differentiation, and enrichment) with all students.

Enrichment Learning and Teaching

Enrichment learning and teaching is a systematic set of strategies identified by Renzulli (1994) to promote active engagement in learning on the parts of both teachers and students and to extend what has traditionally been considered the pedagogy of gifted education to all students in a school. These strategies, based on enrichment theories that have been evolving from research conducted at the University of Connecticut during the last 15 years, served as the foundation of the content of the professional development materials created for this study. In a certain sense, the approach strives to do everything the opposite of traditional, didactic teaching. Four principles define the concept of enrichment learning and teaching:

> 1. Each learner is unique. Therefore, all learning experiences must take into account the abilities, interests, and learning styles of the individual.
> 2. Learning is more effective when students enjoy what they're doing. Therefore, learning experiences should be designed and assessed with as much concern for enjoyment as for other goals.
> 3. Learning is more meaningful and enjoyable when content (i.e., knowledge) and process (i.e., thinking skills, methods of inquiry) are learned within the context of a real and present problem, and therefore, attention should be given to opportunities to personalize student choice in problem selection, the relevance of the problem for individual students at the time the problem is being addressed, and strategies for assisting students in personalizing problems they might choose to study.
> 4. Enrichment learning and teaching focus on enhancing knowledge and acquiring thinking skills. Applications of knowledge and skills must supplement formal instruction. (p. 204)

Numerous research studies and field tests in schools with widely varying demographics have yielded both research support and practical suggestions for schools wishing to use enrichment learning and teaching (Renzulli & Reis, 1994).

Goals and Objectives

This 5-year study focused on two major questions:

1. To what extent could we use research-based training techniques, implementation handbooks, videotape modules, and multiple professional development methods throughout the country without direct involvement from the NRC/GT in delivering on-site training?
2. To what extent would gifted education pedagogy improve educational opportunities for all students, while simultaneously addressing the specific needs of gifted students?

The objectives of the study were as follows:

1. To complete a comprehensive national survey on professional development practices in schools and the manner in which these practices related to identification and services provided to talented students.

2. To investigate the effectiveness of existing NRC/GT professional development modules on curriculum compacting, thinking skills, and high-end learning opportunities.
3. To investigate the professional development and training methods that can be used to implement various modification, differentiation, and enrichment strategies in schools across the country.
4. To develop an effective, research-based professional development module on using gifted education pedagogy with all students.

CHAPTER 3: Survey Procedures

Karen L. Westberg

> *Individuals who determine the gifted education professional development practices within districts are primarily the gifted education coordinators (20.3%) and superintendents (13%).*

This chapter describes the procedures used to develop and to distribute the Professional Development Practices in Gifted Education—District Level Survey (Appendix A). The questionnaire was administered through the mail in 1996 to four groups: a field-test sample from four states, the NRC/GT Collaborative School Districts (CSDs), individuals who purchased professional development modules produced by The National Research Center on the Gifted and Talented (NRC/GT) between 1990 and 1995 and, most importantly, a stratified random sample of nearly 3,000 school districts throughout the United States.

The Professional Development Questionnaire

Instrument Development

The Professional Development Practices in Gifted Education District Level Survey was developed by reviewing the literature on effective professional development practices, reflecting on our experiences in providing professional development training, and determining the information that would address the research questions. Among the questions that guided the development of the questionnaire were: (a) Who plans the professional development experiences in gifted education for a school district—an administrator or committee that surveys teachers' interests, etc.? (b) What is the nature of a district's professional development follow-up procedures? (c) What is the extent to which school districts encourage collaboration between and among teachers, between researchers and teachers, or between administrators and teachers? (d) What is the school district's perceived impact of the professional development experiences? An early draft of the questionnaire was sent to administrators in three school districts to gather input about the information that should be included on the instrument and to receive feedback about items that may not be answered easily by districts.

After much deliberation and many revisions, an 11-page closed-format questionnaire was developed to solicit information about the respondents, the school district, the district's gifted education program, and the district's professional development practices in gifted education. In Part I of the questionnaire, respondents were asked to identify their school positions and years of experience within school districts. In Part II, information on district enrollment and district budget for professional development practices in gifted education was requested. In Part III, questions were asked about a school district's gifted education program. If the district had a program, the respondent provided general information, including the program type (e.g., within-class, pull-out, separate classes, separate schools, Saturday or summer program), grade levels served by the program, and the number of years program services have been provided. In Part IV, extensive information was requested about a school district's professional development practices in gifted education.

In Part IV, the following 10 sections were included: (A) Mission and Philosophy Statements, (B) Needs Assessment, (C) Goal Setting, (D) Incentives, (E) Design of Professional Development Practices, (F) Impact, (G) Professional Development Areas, (H) Formats, (I) Scheduling Options, and (J) Providers. The items in sections A through F were statements with the following response format: (1) Not Accurate, (2) Slightly Accurate, (3) Generally Accurate, or (4) Completely Accurate. For example, the first statement in Section A was: "Our school district has developed a comprehensive mission and philosophy statement for gifted education." The initial items in sections A through F were all contingency statements, which means that if "not accurate" was selected as a response, the remaining items within that section were omitted. However, if individuals selected any response other than "not accurate," they responded to the other statements within that section. For example, if an individual selected "generally accurate" for the first item in Section A, he or she would continue by addressing the second item in Section A: "The mission and philosophy statement describes the goals, practices, and participants within our gifted education program." The items in Part IV reflected the best practices in professional development and were all worded positively, meaning that no negative item stems were used.

The response format for the items in Section G (Professional Development Areas) of Part IV is different than the previous sections. Fourteen topics in gifted education were listed, and respondents indicated the frequency to which each topic had been addressed in the previous 3 years by selecting one of the following: never, once in the last 3 years, 2-3 times in the last 3 years, and more than 2-3 times in the last 3 years. Respondents also indicated the audience for the training (elementary teachers, junior high teachers, senior high teachers, g/t teachers, and administrators). For example, a respondent may have indicated that professional development on acceleration options was provided to the g/t teachers once within the past 3 years.

The remaining three sections of the survey (Sections H, I, and J) contained items followed by a 4-point response scale. For example, the first item in Section H was "Gifted education topics are discussed during faculty meetings" was followed by the responses: (1) Never, (2) Seldom, (3) Sometimes, and (4) Often.

An additional page on the questionnaire was distributed to the individuals who purchased professional development materials from NRC/GT. This page provided three open-ended questions about the ways in which the video and print materials were used within the school districts.

Sampling Procedures

A high response rate is important in survey methods; therefore, we used a three-phase mailing procedure and special survey techniques were used to target a 50% response rate for the questionnaires sent to the four samples. The three-phase procedure included mailing pre-notification letters, the questionnaires (with an incentive), and follow-up surveys. A pre-notification letter explaining the importance of the survey was sent 2 weeks prior to mailing the questionnaires. When the actual questionnaires were mailed, each recipient received a cover letter, the questionnaire, the opportunity to select a free publication from the NRC/GT, and a postage-paid return envelope. The questionnaires were addressed to the school superintendents, who were instructed to either complete the questionnaire themselves or designate the appropriate individuals who could respond to the survey because of their familiarity with the district's professional development procedures. A follow-up questionnaire was sent to the non-respondents 2 weeks after the actual survey was sent.

Sampling Plan

The questionnaire was administered to a stratified random sample of school districts for both the field test and the national sample to compare responses from school districts in various parts of the country, from various types of communities, and from states that had various types of gifted education mandates. The sampling plan was developed in cooperation with Market Data Retrieval (MDR), a national company that maintains a database of current information about every school district in the country and has the capacity to create samples based on various strata.

Field Test

The field test version of the questionnaire was mailed to a random sample of approximately 200 school districts from four states that would likely have variations in their gifted education services: state number one had a legislative mandate to identify gifted education students; state number two had a legislative mandate to both identify students and provide gifted education programs; state number three had a legislative mandate to both identify students and provide programs as well as require gifted education endorsement for teachers; and state number four did not have a mandate to identify students or to provide programs. The number of districts in the field test sample was proportional to the total number of districts within these four states; therefore, the resulting sample size for the field tests was 182 districts. After using the three-phase mailing procedure described earlier, a total of 69 questionnaires were returned by the field test sample ($n = 16$ from state number one, $n = 17$ from state number two, $n = 22$ from state number three, $n = 14$ from state number four). The demographic characteristics from the responding districts were similar to the demographic characteristics from the subsequent national random sample. For example, the mean percentages of students belonging to ethnic groups in the field test sample were: 8% African American, 1.78% Asian American, 0.19% Puerto Rican, 10.64% Hispanic American, 0.37% Native American, 75.57% Caucasian American, and 3.59% Other.

The descriptive and inferential results of the field test were similar to the results obtained from the subsequent samples, therefore, only a few results will be provided here. Among the findings from the field test sample were:

- Individuals who determine the gifted education professional development practices within districts are primarily the gifted education coordinators (20.3%) and superintendents (13%).
- At the elementary level, 46% of the districts reported having pull-out gifted education programs, and 13% of the districts reported no programs.
- At the middle school/junior high level, 28% of the districts reported separate classes, and 17% reported no gifted education services of any type.
- At the high school level, 29% of the districts reported having separate classes, and 46% reported having no gifted education services of any type.

A few minor changes were made to the questionnaire after reviewing the results from the field test. The audience section in Section G appeared to be unclear to some respondents; therefore, the column labeled "all" was moved from the last column to the first column. In addition, some individuals appeared to be unclear as to how they should respond to the contingency items in Part IV. Some respondents selected "not accurate" to the initial item in each section and did not move to the next section as directed. Therefore, a minor change was made to the directions for completing Section IV on the questionnaire; namely, "continue to the next section" was changed to "skip to the next section." Also, because a 50% response rate was not obtained from the field test sample, a larger incentive was provided for the three samples.

Data Collection

When determining the appropriate sample size for the survey, the following factors were considered: the acceptable sampling error estimates, number of survey items, anticipated response rate, and available resources. The primary sample was a stratified random sample of 3,000 school districts throughout the country. Strata included state, region of the country (Northeast, North Central, South, West), and socioeconomic status of the district. Proportional sampling of districts within states was used for the subsequent classification of states into groups according to gifted education legislative mandates (mandate, partial mandate, no mandate). The three-phase procedure described earlier was used for the questionnaires (pre-notification letter, mailing the questionnaire, mailing a follow-up questionnaire). Incentives for completing the questionnaires included the opportunity to select a free print publication from the NRC/GT, as well as an opportunity to enter a lottery for a free video from the NRC/GT. As with the field test, the questionnaires were mailed directly to the superintendents of each school district with instructions to forward it to the appropriate person who could provide the requested information.

In addition to the random sample, 460 questionnaires were mailed to individuals who purchased the professional development print and video materials from the NRC/GT in the previous 5 years, and 216 questionnaires were sent to the NRC/GT Collaborative School Districts. Duplicate districts were removed from the lists, which reduced the national random sample list to 2,940 districts. National sampling error rates for the three samples were calculated at the 95% confidence level by using the following formula (Pena & Henderson, 1986):

$$\sqrt{\frac{(\text{response rate})\,(100 - \text{response rate})}{\text{useable response}} \times 1.96}$$

These statistics reflect the degree to which the resulting samples differ from the target populations whom they represent. The response rate by sample is shown in Table 3.1.

Table 3.1

Response Rate by Sample

Sample	Sample Size	Number of Responses	Response Rate	Useable Responses	Response Rate	Sampling Error
Random	2,940	1,231	41.87%	1,231	41.87%	2.76
CSD	216	100	46.30%	96	44.44%	9.94
Video	460	205	44.57%	197	42.83%	6.91

Data Analysis

The data from the completed, returned surveys from the stratified random sample were analyzed using descriptive and inferential parametric and nonparametric procedures using SPSS-X, version 6.1 and 9.0 (1993, 1999). Prior to conducting the analyses, standard data cleaning and data screening procedures were performed. After examining univariate and multivariate assumptions, outliers were removed, and variables with skewness were transformed. Descriptive results, including the frequencies or percentages, means, and standard deviations, are shown in Chapter 4. The results of the inferential procedures, including t-tests, multivariate analysis of variance, and discriminant function analysis are shown in Chapter 4.

Follow-up Interviews With Non-respondents and Respondents

To investigate potential respondent bias, a random sample of 19 non-respondents was contacted by telephone in October and November 1996 to determine the extent to which their responses were consistent with the views and responses of the respondents. The questions for non-respondents focused on reasons for non-response and solicited data on their professional development practices in gifted education.

Various reasons were given by the non-respondents for not returning the original questionnaire, including being too busy to complete the questionnaire, having a change in personnel (either administrative or in the g/t position), and having misplaced the questionnaire. Fourteen of the non-respondents indicated a willingness to complete the survey if it were sent again. The results indicated that there was not a bias in who responded to the survey.

Telephone interviews were also conducted with a random sample of 19 respondents to seek additional information about their program goals and professional development activities. Of the 19 respondents, 16 responded to additional questions on the telephone. Fourteen of them indicated that classroom teachers were involved in professional development activities for gifted education and that the effectiveness of these activities was measured through informal observation. When making recommendations to promote gifted education services, four district contacts felt that more collaboration with classroom teachers should be sought, and three contacts mentioned the need for more legislative mandates and funding.

Limitations

The internal validity of the Professional Development Practices in Gifted Education District Level Survey was affected by (a) the clarity and accuracy of the questionnaire itself, (b) the questionnaire response rate, (c) the representativeness of the respondents, and (d) the accuracy of the survey responses. Careful and specific procedures were planned to address these potential limitations and to reduce their influence to the maximum extent possible. Because the primary group that received the questionnaires was a stratified random sample, the results are generalizable to schools throughout the country; however, no attempts are made to generalize the results to those who purchased the NRC/GT professional development materials or the CSDs.

CHAPTER 4: Professional Development Survey Results

Sunghee Park
Lisa Muller

Less than 45% of the respondents indicated that gifted education specialists provided training with the district several times a year. . . .

Respondent, Student, District, and Gifted Education Program Information

This chapter presents descriptive information on the respondents who completed the Professional Development Practices in Gifted Education Survey, the students, and gifted education programs within their districts, and district policies. All of the descriptive information is separated by sample group. The term random will indicate the stratified random sample of 3,000 school districts throughout the country. The sample of surveys sent to the NRC/GT Collaborative School Districts will be represented by the term CSD. The term video will be used to indicate the sample of respondents that purchased print and video materials from the NRC/GT. A copy of the survey is in Appendix A.

Respondent Information

Respondents were asked about their currently held employment position and the number of years in that position. As can be seen in Table 4.1, the majority of the respondents from the random sample held the position of superintendent (30.8%) and gifted education coordinator (26.8%). For the CSD sample, the majority of the respondents were gifted education coordinators (42.7%). The video sample responded in a similar manner to the CSD sample with the majority of the respondents being gifted education coordinators (62.9%). The means and standard deviations of the number of years the respondents held their current position are represented in Table 4.2. The mean number of years the respondents were in their current positions was similar for both the random and the CSD sample, 6.18 and 6.09 years, respectively. The standard deviation for the random sample was 5.56 and 4.89 for the CSD sample. For the video sample, the mean number of years the respondents held their position was 8.06, with a standard deviation of 6.14.

Table 4.1

Positions Held by Respondents

	Random		CSD		Video	
	N = 1,231		*N* = 96		*N* = 197	
Position	*n*	%	*n*	%	*n*	%
Superintendent of school	379	30.8	9	9.4	- - -	- - -
Assistant superintendent	127	10.3	12	12.5	12	6.1
Professional development coordinator	41	3.3	6	6.3	6	3.0
Pupil personnel coordinator	22	1.8	2	2.1	2	1.0
Special education coordinator	79	6.4	6	6.3	6	3.0
Gifted education coordinator	330	26.8	41	42.7	124	62.9
Principal	67	5.4	5	5.2	6	3.0
Other	127	10.3	10	10.4	25	12.7
No Response	59	4.8	5	5.2	16	8.1

Note. Some totals do not equal 100% due to rounding errors.

Table 4.2

Number of Years in Current Position

	Random	CSD	Video
	N = 1,231	*N* = 96	*N* = 197
M	6.18	6.09	8.06
SD	5.56	4.89	6.14

Student and District Information

Ethnicity

Respondents were asked to approximate the ethnicity of the students in their districts. The percentages of the student populations' ethnicity are displayed in Table 4.3. For all three samples, an overwhelming majority of students were White Non-Hispanic American. The second highest ethnic group for all three samples was Black Non-Hispanic American and this group was a relatively small percentage of the student population for all three samples.

Table 4.3

Students' Ethnicity Within Respondents' School District

Ethnicity	Random *N* = 1,231 %	CSD *N* = 96 %	Video *N* = 197 %
Black Non-Hispanic American	7.78	10.76	11.62
Asian or Pacific Islander	1.65	1.92	2.49
Puerto Rican	.27	1.48	.50
Other Hispanic	6.10	5.48	4.01
American Indian or Alaskan Native	2.59	2.98	3.29
White Non-Hispanic American	81.03	75.25	77.37
Other	.53	2.12	.97

Note. Some totals do not equal 100% due to rounding errors.

Percentage of Funding for Professional Development in Gifted Education

The estimations of the percentage of funding for professional development in gifted education are described in Table 4.4. Respondents were asked to estimate the percentage of funding for gifted education professional development in comparison to their total budget for professional development. The CSD sample had the largest percentage of their professional development budget designated to gifted education professional development with a median of 5% and a range of 100.

Primary Decision-maker for Professional Development Practices in Gifted Education

Respondents were asked to indicate the primary decision-maker for professional development practices in gifted education within their districts (Table 4.5). For the random (21.4%), CSD (25.0%), and video (37.1%) samples, the gifted education coordinator was the primary decision-maker. The primary-decision maker with the second highest percentage for the CSD and video samples was district-wide committee.

Table 4.4

Percentage of Funding—Gifted Education Professional Development

	Random *N* = 1,231	CSD *N* = 96	Video *N* = 197
Median	4.00	4.50	3.00
Range	100	100	100

Table 4.5

Primary Decision-makers for Professional Development

	Random		CSD		Video	
	N = 1,231		*N* = 96		*N* = 197	
Decision-maker	*n*	%	*n*	%	*n*	%
Superintendent of schools	176	14.3	7	7.3	14	7.1
Assistant superintendent of schools	101	8.2	12	12.5	27	13.7
Professional development coordinator	67	5.4	4	4.2	11	5.6
Pupil personnel coordinator	9	.7	1	1.0	2	1.0
Special education coordinator	46	3.7	5	5.2	13	6.6
Gifted education coordinator	263	21.4	24	25.0	73	37.1
Gifted education teacher	103	8.4	9	9.4	5	2.5
Principal	89	7.2	10	10.4	8	4.1
District-wide committee	176	14.3	15	15.6	25	12.7
No response	201	16.3	9	9.4	19	9.6

Note. Some totals do not equal 100% due to rounding errors.

Gifted Education Program

Identification Mandate

Table 4.6 displays the percentage of the school districts within each sample that mandates identification of gifted education students. Although not all states require school districts to identify gifted education students, the overwhelming majority of each sample responded yes.

Table 4.6

Percentage of School Districts With Identification Mandate

	Random		CSD		Video	
	N = 1,231		*N* = 96		*N* = 197	
Identification Mandate	*n*	%	*n*	%	*n*	%
Yes	869	70.6	73	76.0	136	69.0
No	301	24.5	18	18.8	50	25.4
I don't know	43	3.5	2	2.1	5	2.5
No response	18	1.5	3	3.1	6	3.0

Note. Some totals do not equal 100% due to rounding errors.

Programming Mandate for Serving Gifted Education Students

As with identification, the majority of school districts in all three samples require services for gifted students (Table 4.7). When you compare the percentage of the number of school districts that require identification to the number of school districts that mandate services, you will see a small decrease for each sample.

Number of Gifted Education Specialists

The number of gifted education specialists (e.g., teacher, coordinators, consultants) for each district is indicated in Table 4.8. The CSD sample had the largest number of specialists per school district with a mean of 18.88. The CSD sample also had the largest standard deviation (43.27). The video sample also had a large standard deviation of 25.46 and a mean of 12.00. The distribution varied widely due to the size differences in the school districts in each sample.

Frequency of Professional Development Practices

Respondents were asked to estimate the amount of time gifted education specialists provided professional development practices for faculty within the district. As can be seen in Table 4.9, for each sample the largest percentage of gifted education specialists provide professional development several times a year. Annual professional development practices were the second largest percentage for the random and video sample. Of the CSD sample, 30 indicated that gifted education specialists provide training annually or not at all.

Table 4.7

Percentage of School Districts With Programming Mandate

	Random		CSD		Video	
	N = 1,231		*N* = 96		*N* = 197	
Identification Mandate	*n*	%	*n*	%	*n*	%
Yes	765	62.1	61	63.5	113	57.4
No	398	32.3	33	34.4	70	35.5
I don't know	48	3.9	1	1.0	6	3.0
No response	20	1.6	1	1.0	8	4.1

Note. Some totals do not equal 100% due to rounding errors.

Table 4.8

Number of Gifted Education Specialists

	Random	CSD	Video
	N = 1,231	*N* = 96	*N* = 197
M	6.04	18.88	12.00
SD	16.07	43.27	25.46

Table 4.9

Frequency and Percentage of Occurrence of Professional Development Practices

	Random		CSD		Video	
	N = 1,231		*N* = 96		*N* = 197	
Professional Development	*n*	%	*n*	%	*n*	%
Daily	23	1.9	- -	- -	5	2.5
Weekly	52	4.2	6	6.3	12	6.1
Monthly	61	5.0	10	10.4	15	7.6
Several times a year	308	25.0	40	41.7	76	38.6
Annually	288	23.4	15	15.6	39	19.8
Not at all	266	21.6	15	15.6	27	13.7
No response	233	18.9	10	10.4	23	11.7

Grade Levels Served by Gifted Education Programs

Grade levels served by gifted education programs are listed in Table 4.10. For all three samples, kindergarten had the lowest frequency of providing gifted programming. Gifted education programs in all three samples most often served grades 4 through 6. Of those three grades, grade 5 had the highest frequency of providing gifted education programming for all three samples. A drop of in the frequency of gifted education occurs after grade 8 and continues until grade 12 for all three samples.

Longevity of Gifted Education Programs

Table 4.11 presents the number of years the respondents' school districts had gifted education programs in existence. The CSD sample contained school districts with gifted programs in existence for the longest period of time with a mean number of years of 15.40. All three samples had similar standard deviations.

Table 4.10

Grade Levels Served by Gifted Education Programs

	Random *N* = 1,231	CSD *N* = 96	Video *N* = 197
Grade level	*n*	*n*	*n*
K	484	47	106
1	644	57	125
2	738	62	146
3	882	77	169
4	951	83	171
5	966	84	172
6	946	82	169
7	858	77	157
8	844	76	157
9	639	63	123
10	636	62	124
11	631	61	122
12	636	61	123

Table 4.11

Longevity of Gifted Education Programs

	Random *N* = 1,231	CSD *N* = 96	Video *N* = 197
M	12.20	15.40	14.82
SD	6.32	6.43	6.31

Gifted Education Services

Gifted education services were defined and respondents were asked to indicate the approximate percentage of gifted education services delivered by each of the formats at the elementary, middle, and high school. The percentages across each school level should have totaled 100%. Due to respondents' error, the percentages were over 100%.

Of the different types of gifted education services available, all three samples provided pull-out, within-class, or separate class gifted education programs more frequently than other service delivery models (Table 4.12). For all three samples at the middle school level, the within-class format of gifted education services was used most often.

Table 4.12

Gifted Education Services

	Random			CSD			Video		
	N = 1,231			*N* = 96			*N* = 197		
	%			%			%		
Service Delivery Model	Elementary	Middle	High	Elementary	Middle	High	Elementary	Middle	High
None	4.40	10.29	22.59	4.21	7.90	19.09	6.87	13.46	25.70
Within-class	36.40	36.47	30.00	32.61	33.63	30.15	46.24	40.86	34.15
Pull-out	48.34	31.50	16.99	48.44	25.46	9.88	43.60	23.17	5.84
Separate Class	6.64	19.95	27.62	7.57	24.43	32.01	12.48	37.93	47.73
Separate School	1.01	.48	.77	2.49	2.42	3.00	3.27	1.13	1.84
Summer/ Saturday/ After School	5.56	5.30	5.81	4.68	6.16	5.88	5.31	7.90	8.36

Note. Some totals do not equal 100% due to calculation errors.

Descriptive Results of Professional Development Practices

All of the questions regarding specific details of professional development practices were answered using the following 4-point Likert scale: (1) Not Accurate; (2) Slightly Accurate; (3) Generally Accurate; and (4) Completely Accurate.

Mission and Philosophy Statements

The statement that most reflected the school districts' mission and philosophy statement was Item 3 (Our mission and philosophy statement describes the goals, practices, and participants within our gifted education system.) with the highest mean and lowest standard deviation across all three samples (Table 4.13). Item 2 (The mission and philosophy statement was developed in collaboration with other faculty and community members.) was also indicative of all three samples with the second highest mean and the second lowest standard deviation.

Table 4.13

Mission and Philosophy Statements–Professional Development Practices

	Random		CSD		Video	
	N = 1,231		*N* = 96		*N* = 197	
Mission and Philosophy Statements	*M*	*SD*	*M*	*SD*	*M*	*SD*
1. Our district has developed a comprehensive mission and philosophy statement for gifted education.	2.60	1.22	2.89	1.20	2.94	1.11
2. The mission and philosophy statement was developed in collaboration with other faculty and community members.	3.20	.83	3.33	.79	3.26	.83
3. Our mission and philosophy statement describes the goals, practices, and participants within our gifted education program.	3.25	.77	3.35	.72	3.36	.74
4. The mission and philosophy statement for our gifted education program describes future directions for program growth and improvement.	2.65	.94	2.50	1.13	2.55	1.05
5. The mission and philosophy statement guides professional development practices in gifted education.	2.57	.93	2.66	1.06	2.78	.92

Needs Assessment

Table 4.14 describes the school districts' policies on needs assessment practices for professional development. For all three samples, a needs assessment related to gifted education being conducted within the last 3 years was only a "slightly accurate" statement. The item with the highest mean and lowest standard deviation was Item 2 (The needs assessment process involved the following stakeholders: teachers, administrators, parents.).

Table 4.14

Means and Standard Deviations Regarding Needs Assessment Practices for Professional Development

	Random		CSD		Video	
	N = 1,231		*N* = 96		*N* = 197	
Needs Assessment	*M*	*SD*	*M*	*SD*	*M*	*SD*
1. A needs assessment related to gifted education has been conducted within the last 3 years on gifted education practices.	2.23	1.26	2.02	1.24	2.37	1.31
2. The needs assessment process involved the following stakeholders: teachers, administrators, parents.	3.27	.77	3.21	.78	3.37	.73
3. The needs assessment process has been used to identify professional development practices.	2.78	.91	2.81	.93	2.98	.95
4. Our professional development practices are directly related to our needs assessment.	2.83	.84	2.98	.91	2.99	.99

Goal Setting

Respondents indicated that professional development goals in gifted education are established less often for faculty than for gifted education teachers and classroom teachers (Table 4.15). Item 2 focused on professional development goals in gifted education for gifted education teachers. This item had the highest mean with a relatively small standard deviation for all three samples.

Table 4.15

Annual Professional Development Goals

	Random		CSD		Video	
	N = 1,231		*N* = 96		*N* = 197	
Goal Setting	*M*	*SD*	*M*	*SD*	*M*	*SD*
1. Annual professional development goals in gifted education are established for our faculty.	1.88	1.03	2.28	1.16	2.11	1.09
2. Annual professional development goals in gifted education are established for gifted education teachers.	2.86	.91	3.19	.89	3.08	.87
3. Annual professional development goals in gifted education are established for classroom teachers.	2.38	.90	2.52	1.06	2.39	.86
4. Our administrators encourage classroom teachers to identify individual professional development goals related to gifted education practices.	2.50	.94	2.42	1.02	2.18	1.04

Incentives

Table 4.16 describes incentives used in professional development practices in the respondents' school districts. The response of "generally accurate" was given by all three samples for ancillary incentives being offered for professional development practices. All three samples rated the item regarding ancillary incentives (e.g., continuing education units, release time, attendance at conferences) more accurate than extrinsic or intrinsic incentives.

Table 4.16

Incentives Used in Professional Development Practices

	Random		CSD		Video	
	N = 1,231		*N* = 96		*N* = 197	
Incentives	*M*	*SD*	*M*	*SD*	*M*	*SD*
1. A variety of incentives are connected to our professional development practices in gifted education.	1.97	1.13	2.35	1.26	2.40	1.16
2. Ancillary incentives are offered for professional development practices (e.g., continuing education units, release time, attendance at conferences).	3.16	.82	3.47	.68	3.25	.83
3. Extrinsic incentives are offered for professional development practices (e.g., college credit, salary enhancement, stipend).	2.62	1.12	2.83	1.17	2.78	1.18
4. Intrinsic incentives are offered for professional development practices (e.g., recognition as a role model, media recognition or attention, additional responsibilities, perceived benefits to students/parents).	2.64	.94	2.83	1.03	2.87	.93

Design of Professional Development Practices

For all three samples, the statement that professional development practices are designed to provide awareness of gifted education practices was "generally accurate" (Table 4.17). All three samples also responded that it was "generally accurate" that professional development in gifted education was presented in a variety of formats.

Table 4.17

Design of Professional Development Practices

	Random		CSD		Video	
	N = 1,231		*N* = 96		*N* = 197	
Design of Professional Development	*M*	*SD*	*M*	*SD*	*M*	*SD*
1. Professional development in gifted education has been provided within the past 3 years.	2.63	1.19	2.97	1.15	3.27	.99
2. Professional development in gifted education is provided in a variety of formats.	3.02	.85	3.19	.88	3.21	.82
3. The needs of individual faculty are taken into account in designing professional development practices in gifted education.	2.80	.90	3.03	.90	2.91	1.00
4. Beginning, intermediate, and advanced levels of professional development in gifted education are provided to our faculty.	2.25	.96	2.44	1.07	2.43	1.03
5. Our professional development practices are designed to provide:						
Awareness of gifted education practices	3.04	.81	3.17	.77	3.23	.84
In-depth information	2.71	.93	2.85	.99	2.95	.92
Direct impact	2.78	.90	2.83	.94	3.02	.90

Impact

When asked about the impact of professional development practices in Item 1, most respondents' indicated that school districts do not evaluate their professional development practices (Table 4.18). Ironically, respondents also indicated that the school districts' professional development practices had a positive impact on teachers' knowledge of gifted education (Item 3). However, we do not have information on the types of data local school districts used to evaluate the effectiveness of professional development practices.

Table 4.18

Impact of Professional Development Practices

	Random		CSD		Video	
	N = 1,231		*N* = 96		*N* = 197	
Impact	*M*	*SD*	*M*	*SD*	*M*	*SD*
1. We have evaluated the impact of our professional development practices in gifted education on teachers and students.	1.71	.96	1.88	1.16	2.01	1.05
2. The results of evaluation data have been used to plan future professional development practices in gifted education.	2.88	.74	3.13	.76	2.96	.76
3. Our professional development practices have had a positive impact on teachers' knowledge base regarding gifted education.	2.93	.71	3.18	.59	3.15	.70
4. We have seen a positive change in teachers' instructional skills and abilities.	2.78	.72	3.02	.61	2.90	.77
5. We have seen improvements in teachers' curriculum development practices.	2.74	.74	2.93	.72	2.75	.80
6. We have seen improvements in teachers' ability to differentiate curriculum for students.	2.75	.76	2.85	.79	2.76	.85
7. Professional development practices have had an impact on gifted education policies and procedures.	2.57	.80	2.98	.91	2.65	.89
8. Professional development practices have had an impact on the number, nature, and/or quality of gifted education services.	2.74	.77	3.12	.71	2.71	.83

Professional Development Areas

For this section of the survey, respondents were asked to indicate the frequency and audience for each professional development area during the last 3 years. The rating scale was as follows: (1) Never; (2) Once in the last 3 years; (3) 2-3 times in the last 3 years; and (4) More than 2-3 times in the last 3 years.

For the random sample (*M* = 2.79) and the CSD sample (*M*= 3.01), use of technology received the highest rating (Table 4.19). For the video sample, enrichment options (*M* = 2.98) and characteristics and identification of G/T students (*M*= 2.93) were offered more frequently than other topics.

Table 4.19

Professional Development Areas

	Random		CSD		Video	
	N = 1,231		*N* = 96		*N* = 197	
Professional Development Areas	*M*	*SD*	*M*	*SD*	*M*	*SD*
Characteristics and identification of G/T students	2.55	.97	2.59	.90	2.93	.93
Programming models	2.23	.98	2.46	1.01	2.59	1.02
Acceleration options	2.12	1.03	2.25	1.02	2.35	1.10
Enrichment options	2.65	1.00	2.86	1.02	2.98	1.01
Use of technology	2.79	1.14	3.01	1.11	2.75	1.20
Meeting the needs of G/T in the regular classroom	2.51	1.01	2.48	1.06	2.92	.96
Social-emotional needs of G/T	1.98	1.00	1.97	.99	2.15	.99
Curriculum modification	2.58	1.00	2.74	.99	2.90	.91
Curriculum development	2.49	1.07	2.72	1.11	2.64	1.12
Thinking skills	2.62	1.03	2.76	1.06	2.76	1.05
Leadership training	2.00	1.06	1.93	1.13	1.81	1.06
Special programs	2.64	1.14	2.86	1.12	2.79	1.16
Special populations of gifted students	1.91	1.06	2.04	1.11	1.99	1.07
Developing talent in all children	2.36	1.13	2.50	1.21	2.36	1.19

Some respondents appeared to misunderstand the directions for indicating the audiences who received professional development. Specifically, a number of respondents marked "all" (indicating an audience of elementary school, middle school/junior high, high school, gifted and talented teachers, and administrators), but simultaneously checked the individual groups. To avoid reporting inaccurate results, the descriptive statistics for the audiences are not provided.

Formats

Respondents were asked to indicate the frequency with which different formats of professional development were used in the past 3 years: (1) Never; (2) Seldom; (3) Sometimes; and (4) Often. For all three samples the most widely used format for professional development practices was informal, unscheduled conferences or conversations with a mean of at least 3, which represents "generally accurate" on the scale (Table 4.20). Print format was the second most widely used format for all three samples.

Table 4.20

Format of Professional Development Practices

	Random		CSD		Video	
	N = 1,231		*N* = 96		*N* = 197	
Formats	*M*	*SD*	*M*	*SD*	*M*	*SD*
1. Gifted education topics are discussed during faculty meetings.	2.44	.76	2.46	.72	2.53	.77
2. Print information is disseminated to share information about gifted education topics.	2.89	.78	3.17	.75	3.27	.75
3. College courses are provided as a format for professional development practices in gifted education.	2.21	1.03	2.36	1.05	2.34	1.08
4. Informal, unscheduled conferences, or conversations are used to share information about gifted education.	3.04	.85	3.20	.74	3.41	.75
5. Presentations and workshops are scheduled related to gifted education.	2.57	.89	2.78	.88	2.95	.83
6. Demonstrations in the classroom are conducted to share information about gifted education.	2.25	.94	2.49	1.01	2.61	1.01
7. Peer coaching between classroom teachers and gifted education teachers is used as a format for professional development practices in gifted education.	2.25	1.00	2.47	.97	2.44	1.09
8. Faculty members are sent to out of district conferences and conventions to learn about promising practices in gifted education.	2.89	.88	3.08	.88	3.08	.74
9. Practice, feedback, and reflection are used as professional development strategies to improve gifted education practices.	2.50	.96	2.66	.93	2.60	.94

Scheduling Options

Table 4.21 represents the frequency of different scheduling options. The random sample scheduled more professional development practices during school hours (*M* = 2.60). The CSD and video sample both scheduled their professional development practices more frequently during after school hours. The standard deviations for each option were similar, and all of the means for all options were in the "seldom" range (i.e., rating was less than 3).

Table 4.21

Scheduling Options for Professional Development Practices

	Random		CSD		Video	
	N = 1,231		*N* = 96		*N* = 197	
Scheduling Options	*M*	*SD*	*M*	*SD*	*M*	*SD*
1. During the summer months	2.46	1.01	2.61	1.02	2.64	.99
2. After school hours	2.58	.93	2.88	.93	2.90	.87
3. During contracted, district-wide release days	2.59	.99	2.71	1.03	2.74	1.01
4. During school hours	2.60	.96	2.56	.91	2.65	.95

Providers

Respondents indicated the most frequently used provider for professional development practices for all three samples was the district gifted education specialist (Table 4.22). Gifted education specialists received the highest mean rating across the three samples. The random and CSD samples chose "seldom" and the video sample chose "sometimes." District faculty members received the next highest mean (*M* = 2.15) for the random sample, while the CSD and video samples chose independent or free-lance consultants (*M* = 2.32; *M* = 2.37, respectively).

Table 4.22

Providers of Professional Development Practices

	Random		CSD		Video	
	N = 1,231		*N* = 96		*N* = 197	
Providers	*M*	*SD*	*M*	*SD*	*M*	*SD*
1. District gifted education specialists	2.46	1.08	2.83	1.06	3.14	.93
2. District faculty members	2.15	.92	2.26	.92	2.34	.99
3. District administrators	2.03	.92	2.03	.93	2.01	.95
4. University consultants	1.99	.91	2.30	1.00	2.23	.88
5. Regional service center consultants	2.19	1.04	2.07	1.02	1.79	.87
6. State Department consultants	1.96	.92	1.98	.85	1.86	.84
7. Independent or free-lance consultants	2.02	.95	2.32	.91	2.37	.93

Inferential Analysis Results of Professional Development Practices

All inferential data analyses were performed on the random sample only due to the number of respondents. The random sample should also provide a broader perspective of gifted education services across the country.

Region and Respondents' Position

A chi-square analysis was conducted to examine differences among regions with respect to the respondents' position. Region (Figure 4.1) has four levels (Northeast, North Central, South, West) and respondents' position had eight levels (superintendent, assistant superintendent, professional development coordinator, pupil personnel coordinator, special education coordinator, gifted education coordinator, principal, other). The results indicated that a significant difference was found in the respondents' position among regions, $\chi^2(21, N = 1{,}172) = 73.86, p < .0001$. Examination of the standardized residuals indicated more special education coordinators and gifted education coordinators responded to random surveys in the South (see Table 4.23). In the Northeast, more assistant superintendents and pupil personnel coordinators responded to the surveys. Also, fewer special education coordinators in the North Central and fewer gifted education coordinators in the Northeast responded to the surveys.

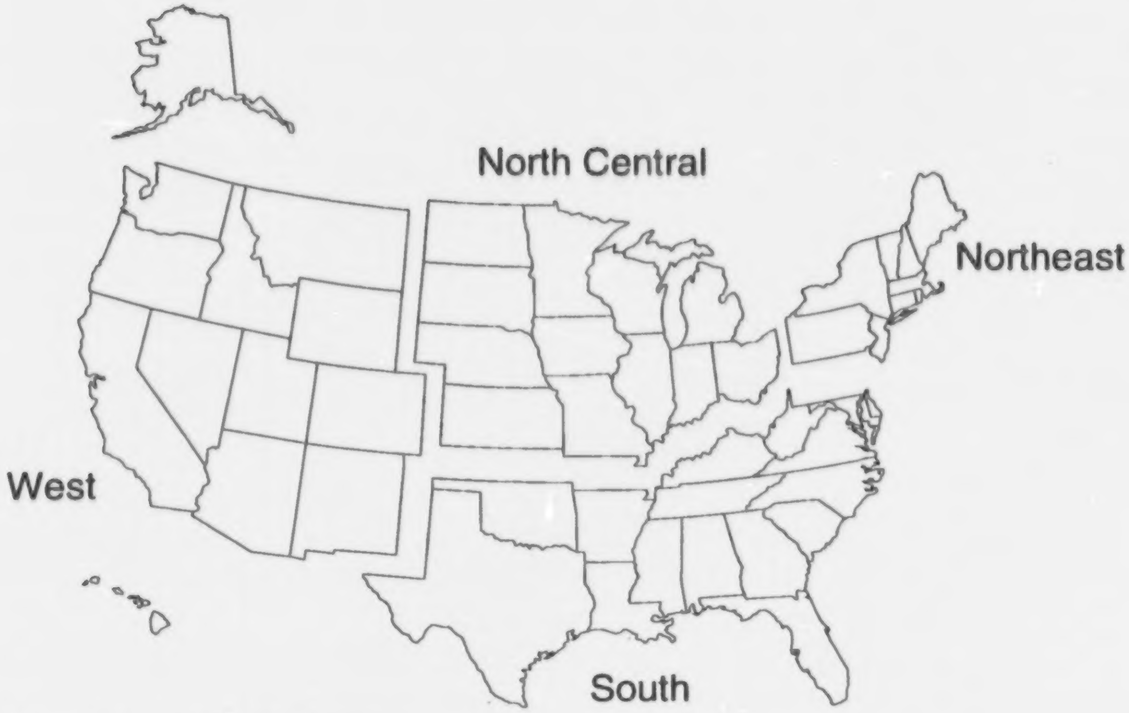

Figure 4.1. Regions of the country.

Table 4.23

Frequencies and Standard Residuals of Respondents' Position by Region ($N = 1{,}172$)

	Region							
	Northeast		North Central		South		West	
Position	*n*	Std. Res	*n*	Std. Res	*n*	Std. Res	*n*	Std. Res
Superintendent	66	-.3	177	1.6	72	-1.8	64	-.1
Assistant superintendent	34	2.3	39	-1.9	29	-.1	25	.7
Professional development coordinator	7	-.1	16	-.2	11	.4	7	.0
Pupil personnel coordinator	9	2.5	5	-1.4	2	-1.4	6	1.2
Special education coordinator	17	.7	14	-3.3	32	3.1	16	.7
Gifted education coordinator	42	-2.3	151	1.2	95	2.0	42	-1.9
Principal	9	-.9	37	1.7	8	-1.9	13	.5
Other	27	.9	47	-.8	26	-.7	27	1.1

Region and Mandates to Identify or Serve Gifted and Talented Students

A chi-square analysis was conducted to examine differences among regions with respect to mandates to identify or serve. The mandate variable was recoded because only 6 respondents selected the "no identification/yes program" option. This variable was recoded into 3 categories: no mandate, partial mandate, and yes mandate. Partial mandate was described as a mandate for identification or gifted education services. Significant difference was found in the mandate among regions, $\chi^2(6, N = 1{,}231) = 283.80, p < .0001$. Examination of the standardized residuals indicated that many states in the West and North Central regions did not have a mandate in gifted education, while more states in the South had a mandate (see Table 4.24). Also, many states in the Northeast had a mandate either for identification or for services only.

Region and Funding

Analysis of variance (ANOVA) was conducted to examine differences among regions with respect to funding in gifted education (see Table 4.25). "Funding" means the estimation of funding for professional development in gifted education. This variable was transformed because of its skewness. The results indicated there was a significant difference in funding for gifted education among regions $F(3, 1{,}068) = 11.89, p < .0001$. Post hoc analysis results indicated the South ($M = 2.15$) had significantly more funding than the Northeast ($M = 1.44$), North Central ($M = 1.86$), and West ($M = 1.68$) regions.

Table 4.24

Mandate by Region ($N = 1,231$)

	Region							
	Northeast		North Central		South		West	
Mandate	*n*	Std. Res	*n*	Std. Res	*n*	Std. Res	*n*	Std. Res
No mandate	32	-3.9	199	4.2	7	-8.5	120	7.2
Partial mandate	76	5.9	95	.3	42	-1.5	11	-4.5
Yes mandate	107	-.6	214	-3.3	243	7.2	85	2.7

Table 4.25

Univariate *F*-tests for Funding Among Regions

Dependent variable	*SS*	*df*	*MS*	*F*
Between Variable	57.53	3	19.18	11.89*
Within Variable	1722.70	1068	1.61	

*$p < .0001$.

Region and Professional Development Practices

A multivariate analysis of variance (MANOVA) was conducted to examine differences among regions on the professional development practices. The independent variable was the region (Northeast, North Central, South, West) and the dependent variables were the 6 areas of professional development practices (mission and philosophy statements, needs assessment, goal setting, incentives, design of professional development practices, impact) (Tables 4.26 and 4.27). Before conducting the data analysis, skewed variables were transformed.

Table 4.26

Mean Scores and Standard Deviations for Measures of Professional Development Practices as a Function of Region

Region	Professional Development Practices: Mission and Philosophy Statements		Needs Assessment		Goal Setting		Incentives		Design of Professional Development Practices		Impact	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Northeast	2.21	1.25	1.79	1.17	1.68	.98	1.79	1.09	2.09	1.13	.37	.12
North Central	2.49	1.23	2.15	1.26	1.77	.98	1.91	1.12	2.59	1.17	.40	.14
South	2.99	1.12	2.65	1.26	2.18	1.06	2.23	1.16	3.16	1.00	.45	.15
West	2.61	1.19	2.27	1.23	1.83	1.01	2.01	1.11	2.58	1.21	.40	.14

Table 4.27

Multivariate and Univariate Analyses of Variance for Professional Development Practices

Source	Multivariate		Univariate					
	df	*F*	Mission and Philosophy Statements	Needs Assessment	Goal Setting	Incentives	Design of Professional Development Practices	Impact
Region	18	6.52**	15.24*	17.11*	11.17*	5.98*	30.95*	10.98*

Note. Multivariate *F* Ratios were generated from Wilks's statistic.
Univariate *df* = 3, 1,006.
* $p < .008$ with Bonferroni adjustment, ** $p < .001$.

With the use of Wilks' criterion, the combined dependent variables were significantly affected by region $F(3, 1{,}006) = 6.52, p < .0001\ \eta^2 = .04$. To investigate the impact of the main effect on the dependent variables, a discriminant function analysis was performed as a post hoc. Three discriminant functions were calculated (see Table 4.28). For the first function there was a strong association between groups and predictors accounting for 92% of the variance, $\chi^2(18, N = 1{,}010) = 115.23, p < .0001$, but the second function ($\chi^2(10, N = 1{,}010) = 9.02, p = .53$) and the third function ($\chi^2(4, N = 1{,}010) = 2.85, p = .58$) were not significant. The first discriminant function maximally separated the South from other regions. The loading matrix of correlations between predictors and discriminant functions suggested the best predictors for distinguishing between the South and the other regions was the design of professional development practices. More school districts in the South had developed a mission and philosophy statement for gifted education, conducted a needs assessment, provided professional development, and evaluated the impact of professional development practices than other regions.

Table 4.28

Discriminant Function Analysis Examining Predictors of Regional Differences by Survey Sections (N = 1,010)

	Correlations of predictor variables with discriminant functions			
Variables	Function 1	Function 2	Function 3	Univariate F
Mission and Philosophy Statements	-.63	.35	.30	15.24*
Needs Assessment	-.67	.16	.46	17.11*
Goal Setting	-.51	.81	-.23	11.17*
Incentives	-.39	.41	.29	5.98*
Design of Professional Development Practices	-.91	-.05	-.25	30.95*
Impact	-.54	.13	-.16	10.98*

*Significant variables at $p < .008$ with Bonferroni adjustment.

Mandates and Professional Development Practices

A multivariate analysis of variance (MANOVA) was performed to examine the difference among mandates with respect to professional development practices. The independent variables were the mandates (yes mandate, partial mandate, no mandate) and the dependent variables were the six areas of professional development practices (Table 4.29). The outliers were removed before data analysis was performed.

Table 4.29

Mean Scores and Standard Deviations for Measures of Professional Development Practices as a Function of Mandate

	Professional Development Practices											
Mandate	Mission and Philosophy Statements		Needs Assessment		Goal Setting		Incentives		Design of Professional Development Practices		Impact	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Yes mandate	2.80	1.18	2.36	1.28	1.93	1.05	2.03	1.14	2.75	1.16	.42	.14
Partly mandate	2.24	1.24	1.96	1.22	1.75	.98	1.89	1.09	2.42	1.17	.39	.13
No mandate	2.37	1.23	2.13	1.24	1.79	.99	1.95	1.14	2.55	1.22	.40	.14

Using the Wilks' criterion, the main effect for mandates was significant $F(2, 1{,}007) = 4.06$, $p < .0001$ $\eta^2 = .02$ (Table 4.30). To investigate the impact of main effect on the dependent variables, a discriminant function analysis was performed as a post hoc. Two discriminant functions were calculated (Table 4.31). For the first function there was a strong association between groups and predictors accounting for 97.39% of the variance, $\chi^2(12, N = 1{,}010) = 48.30$, $p < .0001$, but the second function ($\chi^2(5, N = 1{,}010) = 1.29$, $p = .94$) was not significant. The first discriminant function maximally separated the "yes mandate" group from the "no mandate" and "partial mandate" groups. The loading matrix of correlations between predictors and discriminant functions suggested that the best predictor for distinguishing the "yes mandate" group from the other two groups was mission and philosophy statement of professional development practices. The "yes mandate" group had developed more mission and philosophy statements than the other two groups.

Table 4.30

Multivariate and Univariate Analyses of Variance for Professional Development Practices

			Univariate					
Source	Multivariate		Mission and Philosophy Statements	Needs Assessment	Goal Setting	Incentives	Design of Professional Development Practices	Impact
	df	*F*						
Region	12	4.06**	20.91*	8.14*	3.04*	1.20*	6.34*	3.65*

Note. Multivariate *F* Ratios were generated from Wilks's statistic.
Univariate $df = 2, 1{,}007$.
* $p < .008$ with Bonferroni adjustment, ** $p < .001$.

Table 4.31

Discriminant Function Analysis Examining Predictors of Differences in Mandates ($N = 1{,}010$)

	Correlations of predictor variables with discriminant functions		
Variables	Function 1	Function 2	Univariate *F*
Mission and Philosophy Statements	.93	-.23	20.91*
Needs Assessment	.57	.54	8.14*
Goal Setting	.35	-.14	3.04*
Incentives	.22	.19	1.20
Design of Professional Development Practices	.51	.36	6.34*
Impact	.39	-.20	3.65*

*Significant variables at $p < .008$ with Bonferroni adjustment.

Regions and Professional Development Areas

A multivariate analysis of variance (MANOVA) was conducted to examine differences among regions on 14 items of the professional development areas (Table 4.32). The independent variables were the regions, and the dependent variables were the 14 items of the professional development areas (Table 4.33). Due to a violation of homogeneity of variance, a more stringent alpha level (.01) was used to judge significance (see Tabachnick & Fidell, 1996, p. 328).

Table 4.32

Mean Scores and Standard Deviations for Measures of Professional Development Areas as a Function of Region

	Professional Development Areas									
Region	Characteristics and Identification of G/T Students		Programming Models		Acceleration Options		Enrichment Options		Use of Technology	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Northeast	2.10	1.00	2.06	.99	1.85	1.02	2.45	1.13	2.65	1..25
North Central	2.48	.94	2.17	.97	2.07	1.00	2.70	1.02	2.76	1.19
South	2.93	.87	2.44	1.01	2.34	1.02	2.79	.92	2.90	1.05
West	2.52	.99	2.13	.94	2.09	1.05	2.50	1.01	2.65	1.10

	Professional Development Areas									
Region	Meeting the Needs of G/T in the Regular Classroom		Social-emotional Needs of G/T		Curriculum Modifications		Curriculum Development		Thinking Skills	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Northeast	2.14	1.06	1.67	.95	2.33	1.06	2.29	1.06	2.49	1.08
North Central	2.49	1.00	1.95	1.01	2.56	1.03	2.44	1.10	2.58	1.05
South	2.77	.93	2.27	1.04	2.82	.90	2.69	1.01	2.81	.96
West	2.46	1.08	1.92	.93	2.54	1.03	2.41	1.04	2.53	1.09

	Professional Development Areas							
Region	Leadership Training		Special Programs		Special Populations of Gifted Students		Developing Talent in All Children	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Northeast	1.83	1.05	2.60	1.20	1.83	1.10	2.28	1.24
North Central	1.93	1.02	2.68	1.16	1.71	1.03	2.30	1.15
South	2.27	1.08	2.63	1.12	2.17	1.01	2.32	1.05
West	1.80	.94	2.45	1.21	2.01	1.08	2.35	1.13

Table 4.33

Discriminant Function Analysis Examining Predictors of Regional Differences in Professional Development Areas

	Correlations of predictor variables with discriminant functions			
Professional Development Areas	Function 1	Function 2	Function 3	Univariate *F*
Characteristics and Identification of G/T students	-.78	-.27	-.05	24.16*
Programming models	-.36	-.15	.35	5.81*
Acceleration options	-.42	-.14	.00	7.11*
Enrichment options	-.25	-.46	.13	4.70*
Use of technology	-.18	-.21	.22	2.00
Meeting the needs of G/T in the regular classroom	-.52	-.32	-.14	11.54*
Social-emotional needs of G/T	-.52	-.28	.08	11.17*
Curriculum modifications	-.43	-.22	.03	7.51*
Curriculum development	-.34	-.14	.19	4.83*
Thinking skills	-.29	-.13	.31	3.91*
Leadership training	-.41	-.25	.65	8.99*
Special programs	.01	-.32	.25	1.39
Special populations of gifted students	-.41	.50	.31	9.55*
Developing talent in all children	-.03	.04	-.11	.11

*Significant variables at $p < .004$ with Bonferroni adjustment.

The main effect indicated that the dependent variables were significantly affected by region $F(3, 885) = 3.71, p < .0001\ \eta^2 = .06$ (Table 4.34). To investigate the impact of the main effect on the dependent variables, a discriminant function analysis was performed as a post hoc. Three discriminant functions were calculated (see Table 4.33). The results indicated that only the first function was significant ($\chi^2(42, N = 889) = 152.52, p < .0001$); the second ($\chi^2(26, N = 889) = 44.73, p = .02$) and the third function ($\chi^2(12, N = 889) = 13.24, p = .35$) were not significant at the .01 level. The first function separated the South from the other regions. The Southern region of the country provided more professional development opportunities in the following areas: (1) characteristics and identification of G/T students; (2) meeting the needs of G/T in the regular classroom; and (3) social-emotional needs of G/T.

SES and Professional Development Practices

A multivariate analysis of variance (MANOVA) was conducted to examine differences between SES levels and variables associated with professional development (Table 4.35). The independent variable was the socioeconomic status (low, medium, high) and the dependent variables were the 6 areas of professional development (mission and philosophy statements, needs assessment, goal setting, incentives, design of professional development practices, impact).

Table 4.34

Multivariate and Univariate Analyses of Variance for Professional Development Areas

			Univariate				
Source	Multivariate		Characteristics and Identification of G/T Students	Programming Models	Acceleration Options	Enrichment Options	Use of Technology
	df	*F*					
Regions	42	3.71**	24.16*	5.81*	7.11*	4.70*	2.00

	Univariate				
Source	Meeting the Needs of G/T in the Regular Classroom	Social-emotional Needs of G/T	Curriculum Modifications	Curriculum Development	Thinking Skills
Regions	11.54*	11.17*	7.51*	4.83*	3.91

	Univariate			
Source	Leadership Training	Special Programs	Special Populations of Gifted Students	Developing Talent in All Children
Regions	8.99*	1.39	9.55*	.11

Note. Multivariate *F* Ratios were generated from Wilks's statistic.
Univariate *df* = 3, 885.
* $p < .004$ with Bonferroni adjustment, ** $p < .001$.

Table 4.35

Mean Scores and Standard Deviations for Measures of Professional Development Practices as a Function of SES

	Professional Development Practices											
SES	Mission and Philosophy Statements		Needs Assessment		Goal Setting		Incentives		Design of Professional Development Practices		Impact	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Low	2.62	1.24	2.19	1.27	1.87	1.04	2.07	1.18	2.64	1.20	.41	.14
Middle	2.56	1.20	2.24	1.27	1.86	1.02	1.95	1.12	2.68	1.16	.41	.14
High	2.40	1.23	2.23	1.24	1.79	.98	1.75	.98	2.50	1.21	.39	.13

With the use of Wilks' criterion, the combined dependent variables were not significantly affected by SES $F(2, 989) = 1.38, p = .17\ \eta^2 = .008$ (Table 4.36). The univariate *F*-test results indicated that there was no significant among SES groups (Table 4.37).

Table 4.36

Multivariate and Univariate Analyses of Variance for Professional Development Practices

			Univariate					
Source	Multivariate		Mission and Philosophy Statements	Needs Assessment	Goal Setting	Incentives	Design of Professional Development Practices	Impact
	df	*F*						
Region	12	1.37**	1.95*	.18*	.36*	4.64*	1.24*	.82*

Note. Multivariate *F* Ratios were generated from Wilks's statistic.
Univariate *df* = 2, 989.

Table 4.37

Univariate *F*-tests Among SES Levels and Professional Development Components (*N* = 992)

Dependent variable	*SS*	*MS*	*F*
Mission and Philosophy Statements	5.86	2.93	1.95
Needs Assessment	.59	.30	.18
Goal Setting	.76	.38	.36
Incentives	11.91	5.96	4.64
Design of Professional Development Practices	3.47	1.74	-1.24
Impact	.03	.02	.82

Summary

Descriptive data from the Professional Development Practices in Gifted Education provided an overview of the respondents and their local professional development practices for each of the three samples. Approximately 5% of total professional development budget was allocated to gifted education. These monies were used to familiarize more educators with the nature and needs of gifted and talented children. Gifted education coordinators were the key person to make decisions about topics for presentations and training. Approximately 70% of the respondents noted that their states have an identification mandate and, at least, 57% have a programming mandate. With these percentages, it would seem evident that there would be multiple opportunities to access local training opportunities. However, less than 45% of the respondents indicated that gifted education specialists provided training within the district several times a year, and less than 25% stated that it was annual. Furthermore, 14-22% stated that there was no training at all.

For many years, there has been a trend in the grade levels that receive services in gifted and talented programs throughout the country. The three samples of data, once again, confirmed the typical scenario of program offerings. The number of gifted and talented programs starts out low in grades K-3 and reaches its highest points in grades 4-6. Following these grade levels, the number of programs declines. This pattern was maintained within and across samples. Respondents indicated that these programs have been in existence for several years. The average number of years was 12 to 15 years for the three samples. Other descriptive data that reflect earlier trends reported by various researchers are the location of gifted education services. The most popular service delivery model at the elementary school was still a pull-out program that we defined as: "Pull-Out Programs offer students services in a resource room format for a specific amount of time per week. Many programs operated for a minimum of two hours each week" (The National Research Center on the Gifted and Talented, 1996, p. 4).

With-in class, separate class, and pull-out programs were cited as most frequently used service delivery models at middle schools, according to the respondents from the random sample. This pattern remained accurate for the middle schools in the CSD sample and video sample, as well. At the high school level, the pattern varied within samples; "none" was chosen more often than with-in class programs. We used the following definitions for with-in class and separate class:

> Within-class Programs address the needs of high ability students who are in heterogeneously grouped class with their same-age peers 100% of the time. The percentage of high ability students in these classes varies.
>
> In schools with heterogeneous populations, students in Separate Classes receive their instruction in homogeneous groups for all or some content-area courses. (The National Research Center on the Gifted and Talented, 1996, p. 4)

Additional details regarding the approaches to professional development practices in gifted education were described in this chapter. The survey was designed to collect information on specific practices under 10 categories:

A. Mission and Philosophy Statements
B. Needs Assessment
C. Goal Setting
D. Incentives
E. Design of Professional Development Practices
F. Impact
G. Professional Development Areas
H. Formats
I. Scheduling Options
J. Providers

The statements or descriptors following each category represented the most current research-based or recognized professional development practices. Given this approach to designing and developing this survey, educators may use the statements as a guide to developing effective practices. Essentially, these statements could serve as a needs assessment that is customized to meet local school needs.

CHAPTER 5: Procedures for the Professional Development Module Pilot Study

E. Jean Gubbins

Assessing classroom practices from a distance was quite a challenge. Paper instruments were the proxies for our "presence" in classrooms near and far.

Developing a Plan to Research Professional Development Practices

Our national study about professional development practices to extend gifted education pedagogy to regular education programs was responsive to two major questions:

1. To what extent could we use research-based training techniques, implementation handbooks, videotape modules, and multiple professional development methods throughout the country without direct involvement from the NRC.GT in delivering on-site training?
2. To what extent would gifted education pedagogy improve educational opportunities for all students, while simultaneously addressing the specific needs of gifted students?

Since we were not going to be on-site trainers, we needed to prepare explicit instructional materials for local liaisons. Previously developed NRC/GT videotape modules served as examples of possible training packages. Intervention strategies needed to be presented in detail and instruments had to be collected, adapted, or created to monitor intervention strategies and classroom practices. The four modules (i.e., tape and handbook(s)) included:

1. Curriculum Compacting: A Process for Modifying Curriculum for High Ability Students (Reis, Burns, & Renzulli, 1992)
2. The Explicit Teaching of Thinking Skills: A Six-Phase Model for Curriculum Development and Instruction (Burns, 1993)
3. Curricular Options for High-End Learning (Gavin et al., 1994)
4. Enrichment Clusters: Using High-End Learning to Develop Talents in all Students (Gentry, Reis, Renzulli, Moran, & Warren, 1995)

Some of these NRC/GT videotape modules were shared with the general public via live and/or taped segments, using satellite technology. Videotape modules were available from the NRC/GT on a cost-recovery basis. Feedback about the effectiveness of these videotape modules with teachers who wanted to extend their instructional repertoire; to develop, adopt, or adapt a curricular approach; or to confirm the appropriateness of current classroom practices indicated that the module approach was very positive. How could we extend these modules and introduce teachers to using gifted education pedagogy with all students?

Prerequisites of Professional Development

We reviewed the extant literature on professional development, and revisited a meta-analysis of nearly 200 studies by Showers et al. (1987). These researchers found that effective professional development focused on the following principles, among others:

1. What the teacher *thinks* about teaching determines what the teacher *does* when teaching. In training teachers, therefore, we must provide more than "going through the motions" of teaching.
2. Almost all teachers can take useful information back to their classrooms when training includes 4 parts: (a) presentation of theory, (b) demonstration of the new strategy, (c) initial practice in the workshop, and (d) prompt feedback about their efforts.
3. Teachers are likely to retain and use new strategies and concepts if they receive coaching (either expert or peer) while they are trying the new ideas in their classrooms.
4. Flexibility in thinking helps teachers learn new skills and incorporate them into their repertoires of tried and true methods.
5. A basic level of knowledge or skill in a new approach is necessary *before* teachers can "buy into" it.
6. It doesn't seem to matter where or when training is held, and it doesn't really matter what the role of the trainer is (administrator, teacher, or professor). What does matter is the design of training. (p. 79)

Given these principles and other research-based knowledge, we started a series of discussions about how we could develop research-based, professional development techniques that would transfer the roles of presenter, demonstrator, facilitator, or coach from university specialists to local school personnel. We wanted to know the following:

> What content, information, and strategies should be included in professional development modules to help teachers extend the pedagogy of gifted education to all students?

Our discussions centered on our own current professional development techniques used in courses and consultant work. We shared our methods and materials, reviewed journals and books describing successful approaches, debated appropriate methodologies, struggled with terminology (e.g., differentiation, modification), and gathered definitions of principles of curriculum differentiation created by Passow (1982), Kaplan (1986), Ward (1961), Tomlinson (1995, 1999), Maker and Nielson (1996), and Gubbins (1994). The language associated with principles of differentiation and modification varied by authors. Some authors proposed statements; others used an overarching approach. For example, Passow (as cited in Kaplan, 1986) developed 13 principles of a differentiated curriculum for gifted and talented students, including:

- Present content that is related to broad-based issues, themes or problems;
- Allow for the in-depth learning of a self-selected topic within the area of study;
- Develop productive, complex, abstract and/or higher level thinking skills; and
- Encourage the development of products that challenge existing ideas and produce "new" ideas. (p. 183)

Kaplan (1986) presented an overarching approach to understanding differentiation. Content, process, and product comprise three areas for consideration when developing curricular units or lessons. Tomlinson (1995) suggested analyzing the "content—input, what students learn; process—how students go about making sense of ideas and information; product—output, how students demonstrate what they have learned" (p. 8). Instructional and management strategies related to differentiation include:

- compacting—assess what students already know; design a plan for what students need to learn; create options for enrichment or accelerated learning;

- tiered assignments—create levels of activities, capitalizing on students' existing skills and knowledge and promoting continuous learning;
- learning centers—collections of books, artifacts, photographs, sample projects, and task cards for independent or small group initiatives. (Tomlinson, 1995, p. 8)

We defined and redefined principles of differentiation, reflecting prior work by experts in curriculum development and educational needs of gifted students. We each contributed principles, resulting in a list of over 24 statements. After considerable deliberations, we synthesized our lists and created six strategies, focusing on modification, differentiation, and enrichment. We defined these terms as follows:

> ***Curriculum Modification*** involves the analysis, evaluation, and improvement of existing curriculum units and lesson plans. Modified units increase challenge, authenticity, and active learning to improve learning and achievement.
>
> ***Curriculum Differentiation*** is a process teachers use to enhance learning to improve the match between the learner's unique characteristics and various curriculum components. Differentiation involves making changes in the depth or breadth of student learning. Differentiation is enhanced with the use of appropriate classroom management, varied pedagogy, pretesting, flexible small groups, access to support personnel, and the availability of appropriate resources.
>
> ***Enrichment*** consists of three types of activities:
>
> > Type I Enrichment—experiences and activities that are purposefully designed to expose students to a wide variety of topics, issues, and activities not ordinarily covered in the regular curriculum.
> >
> > Type II Enrichment—the use of instructional methods and materials that are purposefully designed to promote the development of thinking skills and foster the use of authentic, investigative methods in students.
> >
> > Type III Enrichment—Investigative activities and artistic productions in which the learner assumes the role of a first-hand inquirer and a practicing professional. (Renzulli, 1978)

These definitions provided the guidelines for reviewing, improving, deleting, or enriching existing or created curriculum. Each strategy then needed to be described in detail to ensure that others would be able to add it to their teaching repertoire. The six strategies are:

1. Modification, using an existing curriculum unit
2. Differentiation, using open-ended activities
3. Differentiation, using alternative activities
4. Differentiation, using tiered activities
5. Enrichment, using curriculum compacting and interest-based curriculum activities for some students
6. Enrichment, using the Enrichment Triad Model in the classroom for all students

Creating Professional Development Modules

Ideas for creating professional development modules emerged, and we outlined the components of four modules, capitalizing on our prior research and practices. Modules consisted of theoretical and practical background on gifted education and professional development; practical information about designing and implementing successful presentations; detailed scripts for each transparency; set of transparencies; suggestions for simulations, discussions, and activities; collection of readings; and instruments to document the implementation process. We enclosed our NRC/GT videotape collection and handbooks, along with specific suggestions for video clips, illustrating key points in the presentation. The four professional development modules were titled:

1. Conceptions of Giftedness
2. Curriculum Modification
3. Curriculum Differentiation
4. Enrichment Learning and Teaching

Pilot Study of Professional Development Modules

We generated a list of potential pilot sites from the NRC/GT Collaborative School District (CSD) network, participants in our summer conference and institute (Confratute), and local workshops. We prepared an invitation letter to superintendents, outlined the purpose of the pilot study, described the NRC/GT responsibilities, listed the local district responsibilities, and included the timeline (see Appendix B). Districts interested in piloting the modules appointed a local liaison and selected one or more modules (2-3 hours duration each) to use for training and implementation purposes.

We wanted liaisons to present the module to small groups of elementary or middle school teachers in May and June of 1997. They reviewed the professional development materials, including one or more selected modules; one or more videos and handbooks; presenter and participant evaluation forms; and two books:

Garnston, R. J., & Wellman, B. M. (1992). *How to make presentations that teach and transform.* Alexandria, VA: Association for Supervision and Curriculum Development.

Renzulli, J. S. (1995). *Building a bridge between gifted education and total school improvement* (RBDM 9502). Storrs, CT: The National Research Center on the Gifted and Talented, University of Connecticut.

Liaisons were asked to examine and implement the modules and provide feedback about the quality, comprehensiveness, style, and format. They read, edited, deleted, and added to the text in each module, as they experimented with the scripted information. We requested suggestions for new transparencies and classroom examples, illustrating modification, differentiation, and enrichment strategies. As an incentive for participating in the pilot study, we offered liaisons pilot versions of all modules, as well as videotapes and handbooks. Liaisons also had the option of receiving revised modules, incorporating suggested additions and deletions from the results of the pilot study. The ultimate goals of producing these modules were:

- To make self-contained professional development training and videotape modules that will allow novice trainers to present and explain the concepts and strategies.
- To provide advanced trainers the opportunity to extend, refine, and evaluate their skills and those of other educators.

These goals seemed critical to changing classroom practices. We knew from our prior research that few teachers had any exposure to training that would help them develop appropriate and challenging options for students. The Classroom Practices Study (Archambault et al., 1993), focusing on grades 3 and 4 teachers, indicated that 61% of public school teachers and 53% of private school teachers had no training in gifted and talented education. Therefore, we needed an effective, local delivery system of professional development practices in gifted education.

This pilot study in 19 districts was designed to yield data on the efficacy of creating self-contained professional development modules to help teachers make adjustments in their instructional styles and curricular materials, as needed. We analyzed quantitative and qualitative data from the pilot study; reviewed presenter and participant evaluation forms on the quality, content, style, and format of the pilot test version of the modules; compiled focus group data on teachers' beliefs about adoption of new techniques resulting from professional development experiences; and conducted follow-up interviews on the efficacy of creating self-contained professional modules in gifted education. Interview questions included:

- To what extent are the strategies in the modules common practice in classrooms?
- Why do you think it is important to differentiate the regular curriculum?
- To what extent are teachers providing challenges and choices for students with high abilities?
- When and how do teachers change their teaching practices?

Liaisons and teachers offered several content and organizational suggestions to improve the modules. Liaisons needed more in-depth information on specific topics related to conceptions of giftedness. They also wanted additional examples of modification and differentiation techniques. Liaisons were very favorable about the detailed descriptions of training and implementation responsibilities. They thought the modules were well organized. Liaisons and teachers agreed on the high quality of the scripted materials. They suggested that slide frames on the notes' pages, corresponding with each transparency used by the presenter, be enlarged. We were responsive to all suggestions from liaisons and teachers. Pilot data were used to improve the modules. We also decided to incorporate four separate modules into one complete presentation format in a 4-inch binder or "big red notebook." Sample slides and notes are in Appendix C.

Summary

The pilot study of professional development modules was a necessary step in creating a training approach that could be used by local trainers. The contents represented key strategies to be learned, practiced, and applied. Trainers may have had limited or considerable prior knowledge about gifted education. However, the modules presented the information needed to guide the training program for a small number of local district educators. Feedback from the users of the modules certainly helped us to redesign information as needed.

Obviously, the modules reflected a training approach with which we were comfortable. Each section included a research-based rationale, historical background, open-ended discussion questions, and suggested simulations or activities that would provide opportunities to practice modification, differentiation, and enrichment strategies. Forms were also designed to help track the application of strategies in lessons or units. Users of the pilot modules provided suggestions for these sections and we incorporated their ideas as we developed one large module, instead of four separate ones, for the "big red notebook."

CHAPTER 6: Procedures for the Professional Development Module Study—Treatment, Sample, and Instrumentation

E. Jean Gubbins

Intervention Study

This research study had the potential to affect students throughout the country who should be experiencing high-end learning opportunities, capitalizing on their interests, abilities, and talents. Based on written feedback about the pilot study modules and focus group data, we discussed the following questions in preparation for the intervention study:

- What differentiated curriculum and instructional strategies do teachers implement in their classrooms?
- What type of support is necessary for teachers to implement new classroom strategies, addressing students' academic needs, learning styles, and interests?
- How much support is necessary for teachers to implement new strategies?
- What professional development practices are effective in changing teachers' behaviors?
- To what extent can local district liaisons become the persons responsible for leading the district teachers in a professional development opportunity to modify, differentiate, or enrich curriculum?

Treatment Plans

We contacted superintendents from CSD and other interested districts that were aware of our 5-year study due to conference attendance and workshops. We invited them to participate in a 2-year investigation of various methods of providing professional development to classroom teachers who, in turn, would use gifted education pedagogy in their classrooms. We offered potential module users the opportunity to participate in one of the following Treatment Plans (see Appendix D):

Treatment Plan 1: Local Trainer
A local gifted and talented (g/t) teacher or g/t coordinator will present a professional development module to at least five teachers within one elementary or middle school. Interested classroom teachers must willingly agree to participate in this study from February 1998 through May 1999 by attending 3-4 hours of training, implementing at least one new modification, differentiation, and enrichment strategy, and providing requested documentation.

Treatment Plan 2: NRC/GT Trains Local Trainer
NRC/GT staff will provide 2 days of training (December 5-6, 1997), using the professional development module, to selected liaisons who travel to Connecticut. Districts must assume the cost of travel and lodging for their teachers. The purposes of the professional development opportunity will be (a) to provide information on modification, differentiation, and enrichment strategies; and (b) to demonstrate how to conduct effective staff development. This treatment plan is limited to liaisons who have gifted education, classroom teaching, and some staff development experience. Liaisons will then provide training to interested teachers within their districts.

District administrators, potential liaisons, and teachers reviewed the Treatment Plans and completed the application for participation in the professional development study, specifying the Treatment Plan of interest or agreeing to participate in either Treatment Plan 1 or 2. Districts had to agree to the following conditions related to the intervention:

- After receiving the training from the local liaison, participating teachers will form groups by strategy or grade level to implement new practices in their classrooms. In addition to providing collegial assistance/feedback to each other, local liaisons will provide coaching assistance. Teachers will document their use of the strategies and provide logs and portfolios of their efforts, including impact on students. Liaisons also will document the effectiveness of the training approach and the progress of the teachers as they learn and apply one or more selected strategies.
- Districts will provide demographic information as well as data from participating and nonparticipating teachers who serve as comparison subjects. Comparison teachers will provide regular educational programs and complete questionnaires, as needed, for comparison purposes. In addition, participating teachers will provide preliminary preassessment information and documentation that support their implementation of the strategies.
- Local liaisons must maintain monthly communication (telephone or email) with the NRC/GT staff, as well as semi-monthly contact with participating teachers. Districts must be willing to accept potential on-site visits by the NRC/GT staff to participating and nonparticipating teachers' classrooms.

Description of Sample

We understood that successful professional development must include input and feedback from educators associated with the school community. Prior research studies by Westberg and Archambault (1995) and Delcourt and Evans (1994) also confirmed the important role of administrators in supporting new initiatives related to improving curricular and instructional strategies. We knew that changing classroom practices would require support from top-level administrators. Therefore, all aspects of implementing a longitudinal study would be presented to superintendents to ensure formal and informal support for professionals.

After Treatment Plans and conditions related to the intervention were reviewed and approved, liaisons' and teachers' names were recorded, and respective principals and superintendents signed the application. Superintendents forwarded application packages to the NRC/GT. We reviewed applications, assigned districts to one of two Treatments Plans requested or contacted districts to discuss the possibility of assignment to a Treatment Plan other than requested. As of December 1997, teachers from 25 districts in 19 states were involved in Treatment Plan 1: Local Trainer. Teachers from 19 districts in 12 states participated in Treatment Plan 2: NRC/GT Trains Local Trainer.

Instrument Selection

Designing the intervention was a complex procedure. We relied on teachers throughout the country to provide critical feedback to improve the quality and comprehensiveness of the pilot version of the modules. Now we needed to create a systematic approach to assessing the implementation with the revised module, or the "big red notebook." Local district liaisons would assume the role of trainers of colleagues. We recommended that a small group of treatment teachers and comparison teachers would be most appropriate. Approximately, five treatment teachers would provide opportunities for interaction across or within grades, and across or within curriculum. Liaisons and teachers would be responsible for documenting the entire implementation process (see Appendix E).

Teacher and Liaison Questionnaire

The Liaison Questionnaire consists of two parts (Appendix F). Part I of the questionnaire requests demographic information on gender, ethnicity, teaching experience, highest degree earned, and training in g/t education. We asked liaisons to provide a brief description of their position, including grade levels of students with whom they worked or teachers they supervised. Part II focused on School and District Information, including ethnicity of student population, adoption of a formal definition of giftedness, lowest grade level of formal gifted and talented education program, and policies regarding acceleration of curriculum. Other questions focused on staffing and service delivery of an existing gifted and talented program.

Classroom Practices Questionnaire

The instrument development process began with a review of existing questionnaires, observation forms, checklists, rating scales, and learning logs. We selected one instrument previously developed by the NRC/GT researchers. The Teacher Questionnaire With Classroom Practices (Archambault et al., 1993) consists of demographic information and district characteristics, as well as information on classroom instructional and curricular practices (see Appendix G). We wanted to know about prior professional experiences, training, and district provisions for gifted and talented students. Classroom Practices followed the demographic items on the Teacher Questionnaire.

The Classroom Practices Questionnaire was based on a literature review and researchers' experiences. Teachers could make adjustments in their instructional and curricular strategies in the following ways:

1. alternative arrangements for grouping students for instruction;
2. advanced or accelerated work;
3. instruction in higher level thinking skills;
4. within-class enrichment activities of various kinds;
5. modifications of the regular curriculum; and
6. challenges and choices in the curriculum. (Archambault et al., 1993)

The Classroom Practices Questionnaire was administered to a small sample of local teachers to determine the appropriateness of the items, demographic information, programmatic questions, and format. The questionnaire was revised based on the feedback from the initial pilot. The revised version was administered to teachers, and researchers, and once again, requesting feedback. Additional changes were made to questions and format, as a result of teachers' reviews and comments.

Response data (*N* = 3,880) from the original administration of the Classroom Practices Questionnaire (Archambault et al., 1993) were submitted to a factor analysis to determine if there was a theoretically and statistically defensible set of subscales. We developed the 39 items with the intention that we would prefer to analyze resulting data by clusters of items that were conceptually linked, rather than using a total score.

Teachers were asked to respond to 39 items in one of three ways:

1. If they had students who were formally identified as gifted in their classroom, they responded to the items for average students in one column and gifted students in a second column.
2. If they did not have students who were formally identified as gifted by their district, but they believed students were gifted, they, too, completed both columns for average and gifted students.
3. If they did not have students formally identified as gifted nor students they believed were gifted, they responded to questions for average students only.

The Classroom Practices instrument used the following response scale:

0 = Never;
1 = Once a month, or less frequently;
2 = A few times a month;
3 = A few times a week;
4 = Daily;
5 = More than once a day.

When the instrument was originally developed, principal components analysis was conducted on teachers' ratings of formally identified gifted students, informally identified gifted students, average students, and formally and informally gifted students combined (Archambault, et al., 1993). Three separate analyses yielded different solutions: 11 factors, 9 factors, and 6 factors. A six factor solution was forced, and a six factor solution accounted for 38% of the variance in the identified gifted sample. The factors were labeled: Questioning and Thinking; Providing Challenges and Choices; Reading and Written Assignments; Curriculum Modifications; Enrichment Centers; and Seatwork. Alpha reliabilities were .83, .79, .77, .72, .72, and .53, respectively.

The Classroom Practices Questionnaire was deemed appropriate for elementary and middle school teachers who would self-report the extent to which various strategies were occurring. The six factors and sample items include the following:

- **Questioning and Thinking**
  - Teach thinking skills in the regular curriculum.
  - Ask open-ended questions.

- **Providing Challenges and Choices**
  - Provide a different curricular experience by using a more advanced curriculum unit on a teacher-selected topic.
  - Consider students' opinion in allocating time for various subjects within your classroom.

- **Reading and Writing Assignments**
  - Assign projects or other work requiring extended time for students to complete.
  - Give creative or expository writing assignments on topics selected by the teachers.

- **Curriculum Modification**
  - Eliminate curricular materials that students have mastered.
  - Substitute different assignments for students who have mastered regular classroom work.

- **Enrichment Centers**
  - Use enrichment centers.
  - Make time available for students to pursue self-selected interests.

- **Seatwork**
  - Use basic skills worksheets.
  - Use enrichment worksheets.

My Class Activities

Gentry and Maxfield (1995) developed the second instrument: My Class Activities. This instrument required students to reflect on their class activities through a series of 30 items. Four factors underlie the theoretical basis of the instrument: (a) Enjoyment, (b) Interest, (c) Challenge, and (d) Choice. Students in treatment and comparison classrooms responded to this instrument by selecting one of the following options to record their class activities: never, seldom, sometimes, often, or always. Sample items included:

- The teacher involves me in interesting learning activities.
- The activities I do in my class are challenging.
- I like the projects I work on in my class.
- I have to think to solve problems in my class.

The Classroom Practices Questionnaire and My Class Activities were complementary in some respects. The Classroom Practices Questionnaire required teachers to reflect on the type and frequency of learning opportunities in their classrooms, and My Class Activities required students to determine the extent to which certain activities were used. Items contained in each instrument are representative of learning opportunities in many classrooms around the country. Teachers may be directing instruction with a whole group of students interested in ecosystems, observing a small group of students engaged in poetry writing, or evaluating an individual's presentation on history day.

Developing Alternative Data Collection Tools

Additional data needed to be collected to provide an accurate picture of how liaisons and teachers were adopting or adapting the pedagogy of gifted education with all students. Existing instruments did not meet the specific needs of the study. Therefore, we created data collection techniques and instruments responsive to each phase of the study.

We studied alternative assessment approaches for students to see if there were adaptations appropriate for liaisons and teachers. More and more educators realized that students' knowledge and understanding could be assessed by many, varied approaches. Customary approaches were objective tests or essays. Students were required to provide specific details in response to: What do you know? A strong grounding in the specifics of a field is critical. Knowledge, of course, is only part of the story. Educated people also apply what they know to their daily lives and professions. A second question was also important: How can you use this information? Students demonstrate their knowledge through written reports, drawings, learning logs, journals, lab experiments, video clips, audiotapes, or observation records, to name a few. Alternative assessment became a popular approach. Recognizing the versatility of logs and portfolios and the need to document the research journey of liaisons and teachers, we designed a series of instruments to monitor the progress of each individual.

Liaison Log

Logs promote the recording of key ideas, responses to questions, synthesis of information, reflections on class activities, identification of problems incurred, or clarification of ideas (see Appendix H). The 1998 Liaison Log consisted of three sections. Section I, to be completed shortly after the initial training of teachers, included 3 statements:

1. Describe how you presented the material in the Professional Development Module to the teachers (number of sessions, setting, time, administrators' involvement, etc.).
2. Describe the teachers' initial reactions after the strategies were introduced.
3. Describe your reactions after you presented the material to teachers.

Liaisons were encouraged to reflect on questions and statements in Section II of the Log and make notes throughout the implementation period. Section II was to be completed by May 1998. Three questions were posed to determine the extent to which liaisons offered coaching or assistance in implementing or documenting progress.

1. Describe the types of support that you have been providing to teachers (the topics, the ways in which you helped them or the ways in which they helped each other, etc.).
2. Did you help teachers determine documentation formats? Please describe the assistance you provided.
3. List and explain how each teacher has been implementing the modification/differentiation/enrichment strategies (attach additional sheets as necessary).

   [Sample format: John gave his entire 4th grade class a pretest on an upcoming unit on maps and globes. Six students demonstrated sufficient knowledge of the concepts and skills (e.g., longitude, latitude, map projections). Because these students were interested in maps, John gave them the opportunity to work on a group project—making a map of the planet Mars. To do this, they downloaded pictures and information from the NASA web site, etc. They made maps of Mars in different media and also used several map projection techniques. The completed maps were made available to teachers who could use them in their classes.]

One month later—June 1, 1998 Section III consisted of two questions:

1. What was most difficult for teachers when they were implementing the strategies?
2. What suggestions do you have to improve the successful implementation of the modification/differentiation/enrichment strategies in this module?

The Liaison Log focused on initial reactions after training and follow-up prompts emphasized interactions we were recommending, as part of collegial coaching. Collegial support was important to keep the intervention on track and to find formal and informal opportunities for sharing their progress with implementing strategies. Of course, collegial coaching is not a one-way technique. Liaisons and teachers learned from each other, because the journey was an experiment for both of them. The Liaison Log also promoted data collection techniques. Liaisons had to interview, observe, or survey teachers about the specifics regarding their use of selected strategies. Obviously, liaisons were also using such opportunities to determine how to further support teachers who needed additional practice with strategies.

When we designed the Liaison Logs for 1999, we wanted to reinforce how support from liaisons makes a difference for teachers and students. Our letter stated:

> Just as the questionnaires are important, your logs are vital in helping us determine what teachers are actually doing in their classrooms. Your comments are our eyes to the teachers you service and each detail helps us enormously. This last liaison log should reflect your overall impressions of the training and implementation processes.

The Spring 1999 Liaison Log consisted of nine open-ended questions or statements:

1. What was most difficult for teachers when they were implementing the strategies?
2. What suggestions do you have to improve the successful implementation of the modification/differentiation/enrichment strategies in regular classrooms?
3. What professional development practices are effective in changing teachers' behaviors?
4. Please describe how one teacher approached a classroom lesson before and after the training and practice in curriculum differentiation/modification/enrichment.
5. As a liaison, you were involved in collegial coaching. To what extent was collegial coaching an effective strategy in helping teachers experiment with a new strategy?
6. Describe how curriculum differentiation/modification/enrichment benefited students. You may choose to focus on specific students so your description contains details that will help us understand the impact of the strategies.
7. Please share an anecdote about the administrators' perceptions of the effects of the training on teachers' practices.
8. What is the impact of the strategies on the teachers and students? Please give specific examples.
9. To what extent is the "big red notebook" an effective way to provide training to local people?

Assumptions Survey for Liaisons

The first section of the Professional Development Module consists of a brief overview of conceptions of giftedness, including those of Renzulli (1978), Gardner (1983), and Sternberg (1985). Liaisons were encouraged to reflect on their own views of giftedness and talent and to engage their teachers in discussions of talent development. This introductory section of the module presents conservative to liberal interpretations of intelligence and giftedness.

We were also interested in determining the liaisons' assumptions about gifted students (see Appendix I). We developed an 11-item survey entitled Assumptions Survey for Liaisons, focusing on the percentage of students who should be identified as gifted—ranging from 1-2% to 10-15%. We asked where effective programs and services should be delivered: classrooms, special programs, or community. In addition, we were interested in knowing if services were needed for students who possessed strong cognitive and academic abilities. Or should effective gifted programs promote identification of strengths, development of talent, and more optimal learning for all students? Or perhaps effective gifted programs should address all students' social and emotional concerns and issues. Liaisons responded to items using a 4-point Likert scale: (1) strongly disagree, (2) disagree, (3) agree, and (4) strongly agree. Sample questions include:

- I believe that gifted students can make it on their own without teacher direction.
- I believe that only the top 1-2% of our student population should be identified for gifted and talented services.
- I believe an effective gifted program offers services that address all students' social and emotional concerns and issues.

Since we were interested in determining whether liaisons' preconceived conceptions of giftedness changed as a result of working with the background material in the Professional Development Module, liaisons who attended the training conducted by the NRC/GT researchers completed the Assumptions Survey before and after implementing the module. The other group of liaisons completed the survey once.

Teacher Instruments

Teachers' Assumptions and Stages of Involvement Survey

Crucial to accomplishing changes in classroom strategies is comprehensive and on-going professional development opportunities. Liaisons and teachers collaborated in this research study of professional development. The liaison was the key person responsible for reviewing, understanding, and implementing the module, as designed by specialists in gifted and talented education.

For many teachers, change requires reflection on current practices and a willingness to take a risk and try something new. Each individual often views the level of the risk very differently. One teacher may believe that adopting or adapting a new approach to instruction and curriculum is a natural process that occurs as you interact with students and assess their needs. Other teachers may find the idea of change daunting. Therefore, it was important to develop an assessment tool that would measure different levels of the change process.

Part I of the Teachers' Assumptions and Stages of Involvement Survey (Appendix L) consisted of the same 11-items as the Assumptions Survey for Liaisons, with one exception. We added item 12 for teachers: I believe that curriculum for students with high abilities should be based on students' interests and strengths. The instrument was administered after the initial training with the professional development module, the end of 1998, and the fall and spring of 1999. Multiple administrations were used to determine any changes over time in one's view of giftedness and the extent to which selected strategies were being implemented. Part II: Stages of Involvement was developed to provide an "observation window" for the researchers to monitor the potential levels of implementing one or more of the strategies to modify, differentiate, and enrich curriculum.

The Stages of Involvement Survey was based on the work of Hall and Hord (1987), Hord, Rutherford, Huling-Austin, and Hall (1987), and Loucks-Horsley (1989). The Concerns-Based Adoption Model includes four assumptions:

1. Change is a process, not an event. Change takes time and involves a process of development through a sequence of phases and stages.
2. Change occurs in individuals before it occurs in institutions. The focus is change in individual teacher behavior. A school cannot be said to have changed unless the individuals within it have changed.

3. Change is a personal experience. The focus is not on the superficial, the trappings, the media, but on the perceptions and feelings of satisfaction, frustration, concern, and motivation of the individuals involved in any attempted change.
4. Behavioral change cannot be said to have occurred until there is change in feelings about and expertise in the relevant behaviors of the change effort. (cited in Ryan, 1987, p. 151)

Concerns-Based Adoption Model provides an appropriate framework to design a series of statements that identify the teachers' perceptions of the innovation and their level of implementation. The Levels of Use of the Innovation are defined as follows:

- Nonuse—no action is being taken with respect to the innovation.
- Orientation—the user is seeking out information about the innovation.
- Mechanical use—the user is using the innovation in a poorly coordinated manner and is making user-oriented changes.
- Routine—the user is making few or no changes and has an established pattern of use.
- Refinement—the user is making changes to increase outcomes.
- Integration—the user is making a deliberate effort to coordinate with others in using the innovation.
- Renewal—the user is seeking more effective alternatives to the established use of the innovation. (Ryan, 1987, pp. 160-161)

We generated potential items, representing various levels of use and asked a group of five content experts to review items and suggest changes, deletions, or additions. Sample items included:

- I have limited knowledge of modification/differentiation/enrichment strategies.
- I have not analyzed the use of modification/differentiation/enrichment strategies, their characteristics, possible use, or consequences of use.
- I spend time and energy collaborating with staff members about integrating my own use of modification/differentiation/enrichment strategies.
- I explore and experiment with alternative combinations of modification/differentiation/enrichment strategies with existing practices to maximize student involvement and to optimize student outcomes.

The Stages of Involvement Survey contained 29 items with a 4-point Likert-response format: (1) strongly disagree, (2) disagree, (3) agree, and (4) strongly agree. Teachers completed the instrument multiple times; once again, the notion was that the instrument would serve a dual purpose: reinforcement of initial content exposure and training due to repeated reading of items over time.

Implementation Strategies Questionnaire for Teachers

We wanted to monitor the extent to which the modification, differentiation, and enrichment strategies were implemented throughout the study. We knew that teachers would experience various levels of comfort with their knowledge and understanding of the six strategies, and they would implement the strategies to varying degrees. Therefore, we thought that one way to assess their involvement was to create items reflecting low to high levels of actual understanding and involvement.

Initially, we created 77 items for the Implementation Strategies Questionnaire for Teachers: Modification (15 items); Differentiation (41 items); Enrichment (21 items). An additional 14 items were listed as "odds and ends" because they still needed refining before linking them to one specific strategy. The 5-point rating scale was strongly disagree, disagree, undecided, agree, and strongly agree. Content experts (*N* = 4) reviewed each item, compared it to the detailed descriptions in the professional development module, and suggested edits, deletions, and additions. Each expert reviewed item content to determine its classification as an illustration of modification, differentiation, or enrichment strategy. Experts' judgments were analyzed and the final set consisted of 24 items, without the headings of modification, differentiation, and enrichment. The response scale was also revised from a 5-point scale to a 4-point scale (strongly disagree, disagree, agree, strongly agree), excluding the mid-point of undecided. We wanted respondents to review each item and decide if they were implementing the strategy at the time of assessment. They would be asked to complete the instrument 4 times to see if they were refining or adding new strategies. We included the following statement in the instrument directions: Please realize that we are not inferring that you should be doing all these strategies. Since teachers selected one or more strategies that was most appropriate for their teaching assignment, they were not expected to agree with every statement. Sample items by category included:

Modification

- I analyze objectives and determine if they focus on facts, concepts, or principles.
- I review my curriculum objectives and determine the extent to which they represent powerful objectives and big ideas.
- I modify units to increase challenge, authenticity, and active learning.

Differentiation

- I use tiered assignments (i.e., multiple assignments) for the same objective and vary the complexity.
- I use my knowledge of students' strengths, talents, and abilities to plan lessons and units.
- I add breadth to the curriculum by altering the resources, activities, and assignments.

Enrichment

- I use curriculum compacting as an effective technique to adjust the curriculum to students' needs.
- I have students use advanced methodological skills (e.g., computer searches, survey techniques).
- I use interest groups in which students pursue individual or small group projects.

The items designed for the Implementation Questionnaire for Teachers (see Appendix M) provided a type of "training" or "reinforcement" for the strategies. Details related to modification, differentiation, and enrichment were key to each item. As teachers completed the instrument 4 times, it was possible that the instrument would serve as another way to evaluate progress with strategies.

Modification/Differentiation/Enrichment Portfolio

Portfolios are purposeful collections of work that provide evidence of learning. Vavrus (1990) defines portfolios as "a systematic and organized collection of evidence used by the teacher to monitor growth of the student's knowledge, skills, and attitudes" (p. 48). Portfolios have the potential of providing considerable information about abilities, interests, talents, knowledge, skills, and learning. However, they can also become receptacles of various sizes whose content is never reviewed, synthesized, or used to promote further learning.

Since we needed an "observation window" into classrooms, we adopted the portfolio concept to ensure a guided collection of thoughts, questions, and artifacts provided data on the level of understanding and the application of selected modification, differentiation, and enrichment strategies. The Modification/Differentiation/Enrichment Portfolio (see Appendix N) required responses shortly after initial inservice, one month after the inservice, and three months after the inservice. The first requested response required a sketch of the classroom layout. We wanted to know where and how space was used. Was the classroom traditional with a teacher's desk at one end of the room and rows of student desks facing the same wall? Were there small clusters of students' desks surrounded by bookcases, displays, and learning centers? Was classroom space organized by function?

Teachers were then asked to indicate their selected strategy they would use in the classroom and to determine the number of students they would involve in modifying, differentiating, or enriching the curriculum. Additional questions were added 1 month and 3 months later. Teachers were asked to describe their greatest successes and challenges with the strategy and to attach documentation. Suggested forms of documentation included (see Appendix O for samples):

1. lesson plans or curriculum units;
2. student work samples;
3. photographs, slides, audiotapes, videotapes;
4. newsletters;
5. parent letters;
6. scoring rubrics;
7. progress tests; and
8. reading records.

Teachers were asked to reflect on their use of the strategies 3 months after the inservice and to plan their focus for the following year. We also asked questions about the role of principals, benefits to students, and requests for assistance with this professional development opportunity.

The Modification/Differentiation/Enrichment Portfolio for Fall 1998 followed a similar format to the previous portfolios for teachers. We, once again, requested a sketch of the classroom and documentation of the selected strategy. Teachers were also asked to describe the greatest success and greatest challenge they had using the selected strategy. We also asked them to share their comments or thoughts about their use of the strategy. We wanted to know the following:

- What have you learned?
- Tell us about your progress this fall.
- How has your trainer helped you?

The teachers' logs also required documentation of their use of the selected strategy and the impact on students. We listed possible formats, as indicated with the prior log above.

The final Modification/Differentiation/Enrichment Portfolio for Fall 1999 was similar to that of Fall 1998. New questions or statements included the following for questions 6-13:

6. My overall opinions about my use of modification, differentiation, and enrichment strategies are: ________
7. I would have been more effective in modifying, differentiating, and enriching curriculum and instruction this year if I had been able to: ________
8. If your principal had a role or an impact on the process, please describe: ________
9. The benefits to my students whose work was modified, differentiated, or enriched include: ________
10. The following kinds of help and assistance would make this process easier to accomplish: ________
11. What is the impact of the strategies on teachers and students? Please give specific examples.
12. Is there one or more student(s) whose talents have been recognized as a result of these strategies? Please give specific examples.
13. Modifying, differentiating, and enriching curriculum and instruction required approximately _____ hours of effort for me to accomplish each week.

Research in a Nutshell

Throughout the course of the study of professional development practices, we illustrated sound research designs by providing the "big picture" of what the data collection process should yield. Our schedule of assessments was included with each packet of instruments and forms to help liaisons recognize the importance of repeated analyses over time and the requirements for treatment and comparison groups of teachers and students. We also knew that some liaisons and teachers might never have been involved in a large-scale, national research study. Therefore, we decided to create a document entitled: Research in a Nutshell (Dinnocenti, 1998) (see Appendix J). In our September 1998 letter to the liaisons we stated:

> The many duties that you have within your school district are probably enormous and this study's use of questionnaires, portfolios, and liaison logs add to your plate, but the data are important to make conclusions and the forms MUST be filled out completely. We have received many questionnaires where teachers have chosen to make additional comments or enter multiple answers for a given question. Due to the data analysis procedures used, these multiple, missing, and written comments are invalid and cannot be evaluated. We have enclosed a "Research in a Nutshell" paper for you to copy and give to your teachers in the treatment group to help them recognize the critical components of the research process.

The Research in a Nutshell document provided a brief overview of the study by referring to selected transparencies on the research questions and the modification, differentiation, and enrichment strategies from the professional development module. We also reminded the treatment teachers of the following:

> The strategies being implemented are research-based and have been tested in gifted education environments. To extend these strategies and have research support in the regular classroom, practicing professionals are interviewed, observed, and questioned via measuring tools (instruments) on the implementation process. These instruments are the basis of gathering qualitative and quantitative data by which inferences are made.

We then provided brief definitions and explanations of the following terms

- Qualitative
- Quantitative
- Questionnaires
- Missing Data
- Demographics
- Pre-Post
- Portfolios
- Voice

For example, we defined "voice" to indicate that "teachers are change agents for education; they influence what happens today and tomorrow. Unless their information is shared with researchers and policy makers that change may never occur" (Dinnocenti, 1998, p. 3).

Researcher's Anecdotal Record

We developed multiple techniques to maintain communications with liaisons, including phone calls, emails, and letters initiated by our research team. If questions arose regarding the implementation plans, instruments, reporting responsibilities, or questions from their teachers, liaisons contacted us directly. Periodically, we received requests for specific resources related to lessons or units being developed by teachers. To track the requests for information or resources, we developed a form entitled Researcher's Anecdotal Record (see Appendix K). The research team member who received the phone call recorded the date, name, treatment group, question or concern, and response provided. These records ensured that we kept apprised of any questions or concerns that might influence the study's implementation. Some questions were procedural, given the timing of the liaisons' initial training and the follow-up instruments. Others were related to specific content areas and potential resources. And still others were concerns about the amount of documentation. For example:

Researcher's Anecdotal Record—Example A

Question or Concern:
Should . . . [the liaison] administer "My Class Activities" survey to students?

Response Provided:
I suggested she have the teacher administer the instrument & simply place them in an envelope without perusing them.

Researcher's Anecdotal Record—Example B

Question or Concern:
Some problems getting paperwork from teachers. She's not going to take it personally anymore. Feels strongly that problems & concerns should be noted as part of the study. She's aware of many problems at school. Will return full time next August.

Response provided:
No response required.

Researcher's Anecdotal Record—Example C

Question or Concern:
Can teachers use more than one strategy across the 2 years? Is the log available? [She] is getting a list of names together for us.

Response Provided:
Teachers can use more than one strategy or change strategies. Need to have some documentation of mastery of the strategy—teacher and student info. Log is forthcoming.

Researcher's Anecdotal Record—Example D

Question or Concern:
[Liaison] had some questions about the extent to which teachers could/should document what they are doing. For example, one teacher wanted to use a pretest and concept map for entire unit (American Revolutionary War) instead of doing these for just one lesson, and she wondered if that was okay.

In the course of the conversation she told me about some of the additional things she sees teachers doing, and she wondered about documentation. After hearing about these things, I told [the liaison] that we would like her to note them in her Liaison's Log. Here are some examples. The teachers wanted to give choices to students about how to learn Hyperstudio (i.e., with more direct instruction or by reading information on their own). Children made their choices and are very happy with how they are learning Hyperstudio. After one teacher read [Westberg's] article about Ol' Mexico Night, she convinced the other teachers to have dinner together tomorrow night to work on their Jason [Project] extension/enrichment day coming up, which is another new initiative. They are involved in the Jason Project, but they are going to have a "presenter day" on 10 topics related to the Jason Project. Some of the presenters are community members; others are teachers. Students have the opportunity to select 3 presentations, e.g., look at a fiber optics model, making kelp beds, ... Another 5th grade teacher usually teaches the entire "Growing Healthy" curriculum (year long health curriculum), but this year she is doing some textbook triage to have students do only the more major activities which meet the objectives, (they all must do lung dissections for the respiratory system—smoking unit), but she is giving kids some choices in the projects they will do.

[The liaison] believes that exposure to the content in the module has greatly increased teachers' awareness. She sees lots of minor changes in how teachers are doing things.

Response Provided:
I said it was okay [to use a pretest and concept map for entire unit].
I told her it sounded great, and we would appreciate having her note these in her log (even if they aren't major outcomes directly or obviously associated with the six strategies).

The Research's Anecdotal Records helped us to be responsive to questions and concerns and to provide consistent feedback to all liaisons who contacted us. We consulted with research team members formally and informally to ensure that we maintained communications with liaisons who may not have ever been involved in a research study and may not have a full understanding of research protocols.

Summary

Assessing classroom practices from a distance was quite a challenge. Paper instruments were the proxies for our "presence" in classrooms near and far. Since we could not and did not want to be on-site to observe and shape the intervention, we developed a wide variety of instruments that would hopefully elicit critical details, documenting the implementation process. Our eyes and ears were the liaisons and teachers. We relied on self-report documents with the understanding that recorded information may or may not be complete. What details did they choose to include? What details did they leave out? Did they forget to share some really important information? As we reviewed interim documents, we raised questions about our decision to keep our distance from the sites. We hired an external researcher, Dr. Linda Emerick, to conduct 3 site visits. Together we generated questions that would extend, confirm, or counter our existing data. Dr. Emerick reviewed the documents from the selected sites and conducted her qualitative study (see Chapter 12 for details). She confirmed what we anticipated related to the details of various instruments:

> Another thing that we began to notice was the portfolios did not give the whole picture. . . . Some of the teachers who were doing the most, wrote the least. There was one particular fifth grade teacher who was absolutely incredible. This whole process was validating what he had been doing for years. I visited his classroom. It was absolutely incredible. We went back, looked at his logs. He wrote one-word answers—one-word responses. So, we were not always getting the whole picture. . . . [S]ome of the teachers said. . . . they were doing things that they hadn't quite mastered at that point. But anyway, it almost didn't make a difference because we really—with the interviews—found out what they were doing, and they were doing a great deal. (NAGC Convention Transcript, 1999, pp. 29-30)

We also used additional data collection techniques to ensure that we captured as much information as possible, including frequent updates via phone calls, anecdotal reports, informal discussions at conferences and workshops, lesson plans, student products, and selected site visits towards the end of the intervention. Collectively, all of these data provided the "observation window" of the extent to which the pedagogy of gifted education can be used with all students.

CHAPTER 7: Professional Development Module—Quantitative Findings

Sunghee Park

> *Overall, there were both significant and subtle changes in classrooms resulting from the implementation of modification, differentiation, and enrichment strategies.*

Implementation and Analysis of Instruments

To assess the extent to which we could use gifted education pedagogy in regular education programs and to determine how this approach improved education opportunities for all students, including those identified as gifted and talented, required multiple data collection points. The following schedule of assessments (Table 7.1) was implemented for the quantitative instruments described in Chapter 6.

We administered the instruments multiple times to monitor the implementation of the strategies:

1. Modification—using an existing curriculum unit
2. Differentiation—using open-ended activities
3. Differentiation—using alternative activities
4. Differentiation—using tiered activities
5. Enrichment—using curriculum compacting and interest-based curriculum activities for some students
6. Enrichment—using the Enrichment Triad Model in the classroom for all students

Table 7.1

Assessment Plan

Assessment	Who	When
Teacher Questionnaire With Classroom Practices	Treatment and Comparison Teachers	1/98, 5/98, 9/98, 5/99
Assumptions/Stages of Involvement	Treatment Teachers	1/98, 5/98, 9/98, 5/99
Assumptions Survey	Liaisons—Treatment Group 1	1/98
Assumptions Survey	Liaisons—Treatment Group 2	12/97, 2/98
Implementation Strategies Questionnaire	Treatment Teachers	2/98, 5/98, 9/98, 5/99
My Class Activities Questionnaire	Treatment and Comparison Students—grades 3-6	2/98, 5/99

We conducted several preliminary analyses using four administrations of the teachers' instruments. Analysis of data by time periods within and across years yielded similar results. Since there were minor incremental differences on items, we decided to conduct all further analyses on the initial data administration and the final administration (i.e., 1/98 or 2/98 and 5/99). Data were also analyzed by Treatment Group (1 or 2) depending on the instrument. Treatment Group 1 consists of liaisons who received the professional development modules in the mail and their group of teachers; Treatment Group 2 consists of liaisons who were trained by NRC/GT research team and their group of teachers. Data from liaisons and students (treatment and comparison) were analyzed by the two time periods of administration. Quantitative findings related to each of these instruments are provided below along with a subset of research questions specific to each instrument.

Results

Teacher Questionnaire With Classroom Practices Survey

Research Question 1: Is there a significant difference between treatment groups (Treatment Group 1 vs. Treatment Group 2) and time (pretest vs. posttest) with respect to 6 factors of the Classroom Practices Survey?

To examine treatment group and time effect, a repeated measures MANOVA was performed on the Classroom Practices Survey, which asks teachers to complete two rating scales—one for gifted students and one for average students. Only treatment group data were used; comparison group data were excluded from this analysis. The between subject variable was treatment group (Treatment Group 1 vs. Treatment Group 2) and within subject variable was time (pretest vs. posttest). Dependent variables were the six factors from the Classroom Practices Survey (Archambault et al., 1993). The factors were Questioning & Thinking, Providing Challenges & Choices, Reading & Writing Assignments, Curriculum Modification, Enrichment Centers, and Seatwork. Two data analyses were conducted separately for gifted and average students.

Teachers' Classroom Practices With Gifted Students

For teachers' assessments of the frequency with which they used the classroom practices with gifted students, a repeated measures MANOVA was conducted rather than MANCOVA to examine the time effect, as well as the interaction between treatment group and time. Before conducting the data analysis, assumptions were examined. Because there was a violation of homogeneity of variance, a more stringent alpha level (.01) was used to judge significance (see Tabachnick & Fidell, 1996, p. 328). Univariate and multivariate outliers were removed from the data analysis and skewed factors were transformed. After missing values were substituted by the group mean, 285 cases were included in the data analysis.

The results indicated that the combined dependent variables were significantly affected by treatment group $F(6, 278) = 7.14, p < .0001\ \eta^2 = .13$ and time $F(6, 278) = 13.51, p < .0001\ \eta^2 = .23$, but there was no interaction at .01 level $F(6, 278) = 2.56, p = .02$ (Table 7.2). To investigate the impact of the treatment group effect on the 6 factors, a discriminant function analysis with univariate F-test was performed as a post hoc. The results indicated that the function was significant $\chi^2(6, N = 278) = 51.63$, $p < .0001$. The loading matrix of correlations between 6 factors and the discriminant function suggested that the best predictors distinguishing Treatment Group 1 and Treatment

Group 2 were Factor 4 (Curriculum Modification), Factor 5 (Enrichment Centers), and Factor 3 (Reading & Writing Assignments) (Table 7.3). The mean scores of the 6 factors of the Classroom Practices Survey are summarized in Table 7.4. Treatment Group 1 had higher scores than Treatment Group 2 on Factor 3, Factor 4, and Factor 5. Also, posttest scores were higher than pretest scores in both Treatment Group 1 and Treatment Group 2. These results showed that posttest scores for gifted students were higher than pretest scores on Curriculum Modification, Enrichment Centers, and Reading and Writing Assignments. Also, more teachers in Treatment Group 1 than Treatment Group 2 provided these opportunities to gifted students.

Table 7.2

Multivariate and Univariate Analyses of Variance for Teachers' Classroom Practices With Gifted Students

			Univariate					
Source	Multivariate *df*	Multivariate *F*	Questioning & Thinking	Providing Challenges & Choices	Reading & Writing Assignments	Curriculum Modification	Enrichment Centers	Seatwork
Treatment Group (G)	6	7.14**	4.56	18.78*	22.68*	36.59*	30.18*	10.60*
Time (T)	6	13.51**	36.82*	31.16*	36.28*	38.17*	32.02*	14.29*
G x T	6	2.56	.21	.75	3.34	1.66	4.94	.03

Note. Multivariate F Ratios were generated from Pillai's Statistics.
Multivariate $df = 6, 278$, Univariate $df = 1, 283$.
$^{*}p < .008$ with Bonferroni adjustment, $^{**}p < .001$.

Table 7.3

Results of Discriminant Function Analysis for Gifted Students' Scale—Classroom Practices Survey

Factor	Correlations of Predictor Variables With Discriminant Function	Univariate F (1,283)
1. Questioning & Thinking	-.32	5.79
2. Providing Challenges & Choices	.47	12.68*
3. Reading & Writing Assignments	.72	29.41*
4. Curriculum Modification	.88	44.29*
5. Enrichment Centers	.85	41.36*
6. Seatwork	.41	9.54*
Canonical R	.41	
Eigenvalue	.20	

*Significant variables at $p < .008$ with Bonferroni adjustment.

Table 7.4

Means and Standard Deviations on the 6 Factors of the Classroom Practices Survey by Treatment Group and Time for Gifted Students' Scale

Factor	Treatment Group 1 (*N* = 169)				Treatment Group 2 (*N* = 116)			
	Pretest		Posttest		Pretest		Posttest	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
1. Questioning & Thinking	4.11	.23	4.37	.16	4.01	.23	4.22	.19
2. Providing Challenges & Choices	1.68	.72	1.86	.56	1.36	.62	1.62	.60
3. Reading & Writing Assignments	1.90	.59	2.17	.45	1.71	.54	1.85	.55
4. Curriculum Modification	2.35	.72	2.67	.56	1.97	.83	2.18	.68
5. Enrichment Centers	2.47	1.01	2.90	.79	2.06	.97	2.25	.91
6. Seatwork	2.20	.71	2.36	.61	1.99	.63	2.14	.58

Teachers' Classroom Practices With Average Students

A repeated measures MANOVA was also performed on the Classroom Practices Survey responses for average students ($N = 290$). With the use of Wilks' criterion, the combined dependent variables were significantly affected by time $F(6, 283) = 38.01$, $p < .0001$ $\eta^2 = .45$ and treatment group $F(6, 283) = 5.02$, $p < .0001$ $\eta^2 = .10$, but there was no significant interaction $F(6, 283) = .43$, $p = .86$ (Table 7.5). The discriminant function analysis results indicated that the function was significant between treatment groups and 6 factors $\chi^2(6, N = 283) = 34.24$, $p < .0001$. As with the analysis with gifted students, the loading matrix of correlations between 6 factors and discriminant function suggested that the best predictors for distinguishing treatment groups were Enrichment Centers, Curriculum Modification, and Reading & Writing Assignments (Table 7.6). Treatment Group 1 had higher mean scores than Treatment Group 2 on these 3 factors. In both Treatment Group 1 and Treatment Group 2, posttest scores were higher than pretest scores of the Classroom Practices Survey (Table 7.7).

Table 7.5

Multivariate and Univariate Analyses of Variance for Teachers' Classroom Practices With Average Students

Source	Multivariate		Univariate					
	df	*F*	Questioning & Thinking	Providing Challenges & Choices	Reading & Writing Assignments	Curriculum Modification	Enrichment Centers	Seatwork
Treatment Group (G)	6	5.02**	3.44	8.95*	14.09*	18.95*	25.52*	9.36*
Time (T)	6	38.01**	18.48*	228.13*	36.18*	25.12*	17.09*	7.27*
G x T	6	.43	.001	.31	.14	.001	1.39	.30

Note. Multivariate *F* Ratios were generated from Pillai's Statistics.
Multivariate $df = 6, 283$, Univariate $df = 1, 283$.
$^{*}p < .008$ with Bonferroni adjustment, $^{**}p < .001$.

Table 7.6

Results of Discriminant Function Analysis for Average Students' Scale—Classroom Practices Survey

Predictor Variable	Correlations of Predictor Variables With Discriminant Function	Univariate *F* (1,288)
1. Questioning & Thinking	-.29	3.18
2. Providing Challenges & Choices	.38	5.24
3. Reading & Writing Assignments	.63	14.44*
4. Curriculum Modification	.69	17.48*
5. Enrichment Centers	.92	30.95*
6. Seatwork	.42	6.56
Canonical R	.34	
Eigenvalue	.13	

*Significant variables at $p < .008$ with Bonferroni adjustment.

Table 7.7

Means and Standard Deviations on the 6 Factors of the Classroom Practices Survey by Treatment Group and Time for Average Students' Scale

Factor	Treatment Group 1 (*N* = 173)				Treatment Group 2 (*N* = 117)			
	Pretest		Posttest		Pretest		Posttest	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
1. Questioning & Thinking	4.06	.25	4.25	.18	3.93	.26	4.12	.23
2. Providing Challenges & Choices	1.48	.30	1.64	.54	1.22	.34	1.48	.63
3. Reading & Writing Assignments	1.68	.61	1.87	.47	1.47	.54	1.65	.54
4. Curriculum Modification	2.18	.80	2.40	.67	1.83	.88	2.05	.75
5. Enrichment Centers	2.45	1.08	2.74	.84	1.98	1.07	2.14	.97
6. Seatwork	2.14	.72	2.22	.60	1.91	.67	2.03	.62

Research Question 2: Is there a significant difference between groups (Treatment Group vs. Comparison Group) and time (pretest vs. posttest) with respect to the 6 factors of Classroom Practices Survey?

To address research question 2, a repeated measures MANOVA, rather than MANCOVA was performed to examine group effect as well as time effect for gifted students and average students. In this analysis, the between subject variable was group (treatment vs. comparison) and the within subject variable was time (pretest vs. posttest). Dependent variables were the 6 factors of the Classroom Practices Survey. Univariate and multivariate outliers were removed for data analysis and skewed factors were transformed. Because of missing data, missing values were substituted using the by group mean.

Teachers' Classroom Practices With Gifted and Average Students

For the gifted students ($N = 531$), the results indicated that the combined dependent variables were significantly affected by time $F(6, 524) = 21.67, p < .0001$ $\eta^2 = .20$, but not by group $F(6, 524) = .38, p = .89$ nor interaction $F(6, 524) = 1.16, p = .32$ (Table 7.8). As indicated in Table 7.9, posttest scores were higher than pretest scores on all 6 factors for both treatment and comparison groups.

Table 7.8

Multivariate and Univariate Analyses of Variance for Teachers' Classroom Practices With Gifted Students

Source	Multivariate		Univariate					
			Questioning & Thinking	Providing Challenges & Choices	Reading & Writing Assignments	Curriculum Modification	Enrichment Centers	Seatwork
	df	*F*						
Treatment Group (G)	6	.38**	.03	.28*	.004*	.09*	.002*	1.24*
Time (T)	6	21.67**	47.99*	55.40*	65.78*	75.91*	62.97*	16.84*
G x T	6	1.17	4.97	.09	.71	.05	.31	1.51

Note. Multivariate *F* Ratios were generated from Pillai's Statistics.
Multivariate $df = 6, 524$, Univariate $df = 1, 529$.
$^{*}p < .008$ with Bonferroni adjustment, $^{**}\ p < .001$.

Table 7.9

Means and Standard Deviations on the 6 Factors of the Classroom Practices Survey by Group and Time for Gifted Students

Factor	Treatment Group (*N* = 285)				Comparison Group (*N* = 246)			
	Pretest		Posttest		Pretest		Posttest	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
1. Questioning & Thinking	4.07	.64	4.31	.46	4.14	.48	4.25	.42
2. Providing Challenges & Choices	1.55	.69	1.76	.58	1.53	.57	1.73	.47
3. Reading & Writing Assignments	1.82	.58	2.04	.52	1.85	.51	2.02	.42
4. Curriculum Modification	2.20	.79	2.47	.66	2.19	.72	2.45	.62
5. Enrichment Centers	2.30	1.01	2.63	.90	2.33	.87	2.62	.77
6. Seatwork	2.12	.69	2.27	.61	2.20	.67	2.29	.55

A repeated measures MANOVA was also performed on the Classroom Practices Survey for average students ($N = 537$). The results indicated significant difference for time $F(6, 530) = 65.68, p < .0001\ \eta^2 = .43$, but not group $F(6, 530) = .24, p = .96$ nor interaction $F(6, 530) = .95, p = .46$ (Table 7.10). Mean scores showed that posttest scores were higher than pretest scores on all 6 factors for both treatment and comparison groups (Table 7.11). In addition, the attrition rate in the treatment group was compared with that of comparison group. For gifted students, the attrition rate of the treatment group (39.46%) was similar to that of the comparison group (35.71%) in Treatment Group 1, while in Treatment Group 2, the attrition rate of the treatment group (9.47%) was lower than that of the comparison group (24.65%) (Table 7.12). For average students, the attrition rate of treatment group was similar to that of comparison group in Treatment Group 1 and Treatment Group 2 (Table 7.13).

Table 7.10

Multivariate and Univariate Analyses of Variance for Teachers' Classroom Practices With Average Students

Source	Multivariate		Univariate					
	df	*F*	Questioning & Thinking	Providing Challenges & Choices	Reading & Writing Assignments	Curriculum Modification	Enrichment Centers	Seatwork
Treatment Group (G)	6	.24**	.01	.07*	.18*	.03*	.01*	.48*
Time (T)	6	65.68**	15.74*	395.89*	53.16*	41.52*	35.12*	6.50*
G x T	6	.95	4.59	.003	.13	.16	.00	.80

Note. Multivariate *F* Ratios were generated from Pillai's Statistics.
Multivariate *df* = 6, 530, Univariate *df* = 1, 535.
*$p < .008$ with Bonferroni adjustment, ** $p < .001$.

Table 7.11

Means and Standard Deviations on the 6 Factors of the Classroom Practices Survey by Group and Time for Average Students

Factor	Treatment Group (*N* = 290)				Comparison Group (*N* = 247)			
	Pretest		Posttest		Pretest		Posttest	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
1. Questioning & Thinking	4.01	.72	4.20	.54	4.08	.63	4.14	.57
2. Providing Challenges & Choices	1.38	.68	1.57	.58	1.34	.64	1.56	.61
3. Reading & Writing Assignments	1.59	.59	1.78	.51	1.58	.58	1.76	.50
4. Curriculum Modification	2.04	.85	2.26	.72	2.06	.76	2.26	.70
5. Enrichment Centers	2.26	1.09	2.50	.94	2.26	1.02	2.49	.94
6. Seatwork	2.04	.70	2.14	.61	2.10	.74	2.15	.65

Table 7.12

Attrition Rate for Gifted Students' Scale by Treatment Group—Classroom Practices Survey

Treatment Group	Group	Pretest	Posttest	Attrition rate (%)
Treatment 1	Treatment Group	147	89	39.46
	Comparison Group	98	63	35.71
Treatment 2	Treatment Group	95	86	9.47
	Comparison Group	73	55	24.65

Table 7.13

Attrition Rate for Average Students' Scale by Treatment Group—Classroom Practices Survey

Treatment Group	Group	Pretest	Posttest	Attrition rate (%)
Treatment 1	Treatment Group	160	102	36.25
	Comparison Group	123	79	35.77
Treatment 2	Treatment Group	112	98	12.50
	Comparison Group	113	99	12.39

My Class Activities Questionnaire

Factor Analysis and Reliability Test

The principal component factor analysis with varimax rotation was performed on 30 items from the My Class Activities Questionnaire using SPSS. Before the data analysis, sample size, missing data, normality, linearity, and outliers were examined. Because of many missing values, these values were replaced with the mean in the data analysis (*N* = 4,311). Items 15, 24, 25, 26 were transformed because of their negative skewness. Also, one univariate outlier was found and removed from the data analysis.

Four factors were extracted accounting for 49.4% of the variance. Factor loadings, percentage of variance, and their reliabilities are presented in Table 7.14. The results are very similar to the previous study of My Class Activities Questionnaire (Gentry, Gable, & Rezendes, 1999). The four factors were Interest, Challenge, Choice, and Enjoyment. All items except items 12, 13, 16 loaded on the same factor as the original study. Items 12, 13, 16, which were included in Factor 2 (Challenge) in the previous study, loaded on Factor 1 (Interest) in this study.

Table 7.14

Factor Loadings, Percentage of Variance, and Alpha Reliabilities on the My Class Activities Questionnaire (*N* = 4,311)

	Factor			
Items	1	2	3	4
Interest				
What I do in my class fits my interests (1)	.55			
I have an opportunity to work on things in my class that interest me (2)	.50			
What I do in my class gives me interesting and new ideas (3)	.49			
I study interesting topics in my class (4)	.58			
The teacher involves me in interesting learning activities (5)	.49			
What I learn is interesting to me (6)	.55			
What I do in my class is interesting (7)	.57			
My class has helped me explore my interests (8)	.54			
I challenge myself by trying new things (12)	.53			
My work can make a difference (13)	.50			
What we do in class fits my abilities (16)	.54			
Challenge				
The activities I do in my class are challenging (9)		.70		
I have to think to solve problems in my class (10)		.66		
I use challenging materials and books in my class (11)		.52		
I find the work in this class demanding (14)		.68		
I am challenged to do my best in class (15)		.56		
Choice				
I can choose to work in a group (17)			.60	
I can choose to work alone (18)			.43	
When we work together, I can choose my partners (19)			.62	
I can choose my own projects (20)			.66	
When there are many jobs, I can choose the ones that suit me (21)			.62	
I can choose materials to work with in the class (22)			.58	
I can choose an audience for my product (23)			.55	
Enjoyment				
I look forward to my class (24)				.68
I have fun in my class (25)				.76
The teacher makes learning fun (26)				.71
I like what I do in my class (27)				.73
I like working in a class (28)				.69
The activities I do in my class are enjoyable (29)				.72
I like the projects I work on in my class (30)				.66
Percentage of Variance	13.89	8.44	9.91	17.16
Alpha Reliability	.88	.71	.75	.91

Research Question 1: Is there a significant difference between treatment groups (Treatment Group 1 vs. Treatment Group 2) and time (pretest vs. posttest) with respect to 4 factors of My Class Activities?

A repeated measures MANOVA was performed on four dependent variables of My Class Activities Questionnaire: Interest, Challenge, Choice, and Enjoyment. To investigate the treatment effect, only treatment group data were used and comparison group data were excluded for data analyses. The between subject variable was treatment group (Treatment Group 1 vs. Treatment Group 2) and the within subject variable was time (pretest vs. posttest).

After examining the assumptions, a multivariate test was performed for the main effects of treatment group and time, as well as their interaction ($N = 2{,}043$). The results indicated that with the use of Wilks' criterion, the combined dependent variables were significantly affected by treatment group $F(4, 2{,}038) = 328.97$, $p < .0001$ $\eta^2 = .39$, time $F(4, 2{,}038) = 178.10$, $p < .0001$ $\eta^2 = .26$, and their interaction $F(4, 2{,}038) = 209.41$, $p < .0001$ $\eta^2 = .29$ (Table 7.15). As a post hoc, a discriminant function analysis with univariate *F*-tests was conducted. The result of DFA showed that the function was significant between treatment groups and the 4 factors, $\chi^2(4, N = 2{,}038) = 1764.84$, $p < .0001$. The correlation between the 4 factors and discriminant function suggested that all predictors distinguished Treatment Group 1 and Treatment Group 2 (Table 7.16). As indicated in Table 7.17, Treatment Group 1 had higher scores on all 4 factors than Treatment Group 2. Also, time effect and interaction between treatment group and time were significant. Posttest scores were much higher than pretest scores in Treatment Group 1, but not in Treatment Group 2. That means Treatment Group 1 contributed to the differences between pretest and posttest scores rather than Treatment Group 2. Therefore, it is concluded that students in the Treatment Group 1 reported higher posttest scores on Interest, Challenge, Choice, and Enjoyment than pretest scores.

Table 7.15

Multivariate and Univariate Analyses of Variance for My Class Activities Questionnaire

			Univariate			
Source	Multivarite		Interest	Challenge	Choice	Enjoyment
	df	*F*				
Treatment Group (G)	4	328.97**	818.52*	1023.13*	825.56*	533.25*
Time (T)	4	178.11**	393.76*	499.38*	474.46*	200.51*
G x T	4	209.41**	502.87*	627.94*	488.71*	396.15*

Note. Multivariate *F* Ratios were generated from Pillai's Statistics.
Multivariate $df = 4, 2{,}038$, Univariate $df = 1, 2{,}041$.
$^*p < .01$ with Bonferroni adjustment, $^{**}\ p < .001$.

Table 7.16

Results of Discriminant Function Analysis—My Class Activities Questionnaire

Predictor Variable	Correlations of Predictor Variables With Discriminant Function	Univariate F (1, 2,177)
Interest	.75	1509.31*
Challenge	.88	2081.52*
Choice	.77	1602.61*
Enjoyment	.60	971.52*
Canonical R	.75	
Eigenvalue	1.25	

*Significant variables at $p < .01$ with Bonferroni adjustment.

Table 7.17

Means and Standard Deviations on the 4 Factors of My Class Activities Questionnaire by Treatment Group and Time

Factor	Treatment Group 1 ($N = 958$)				Treatment Group 2 ($N = 1,085$)			
	Pretest		Posttest		Pretest		Posttest	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Interest	3.01	.76	3.65	.63	2.62	.64	2.58	.64
Challenge	3.02	.74	3.74	.56	2.68	.57	2.64	.56
Choice	2.57	.77	3.31	.64	2.19	.71	2.18	.68
Enjoyment	3.32	.88	3.92	.79	2.93	.80	2.83	.82

Research Question 2: Is there a significant difference between groups (Treatment Group vs. Comparison Group) and time (pretest vs. posttest) with respect to 4 factors of My Class Activities Questionnaire?

A repeated measures MANOVA was also performed to investigate main effects of group, time, and their interaction on four dependent variables of the My Class Activities Questionnaire. In this analysis, group (experiment vs. comparison) was the between subject variable and time (pretest vs. posttest) was the within subject variable ($N = 3,595$). With the use of Wilks' criterion, the combined dependent variables were significantly affected by group $F(4, 3,590) = 9.11, p < .0001\ \eta^2 = .01$, time $F(4, 3,590) = 175.79, p < .0001\ \eta^2 = .16$, and their interaction $F(4, 3,590) = 3.81, p < .01\ \eta^2 = .01$ (Table 7.18). The post hoc results showed that the function was significant between treatment groups and 4 factors, $\chi^2(4, N = 3,590) = 45.59, p < .0001$. The correlation between 4 factors and discriminant function suggested that all predictors distinguished treatment and comparison groups, and especially the "Choice" factor, which had the highest correlation among 4 factors (Table 7.19). The mean scores indicated that treatment group had higher posttest scores on all 4 factors than the comparison group. Although posttest scores were higher than pretest scores in both treatment and comparison groups, the difference between pretest and posttest scores was higher in the treatment group than comparison group (Table 7.20). Students in the treatment group reported more interest, challenge, choice, and enjoyment on the posttest than pretest. In addition, attrition rate of treatment group was compared to that of comparison group. Table 7.21 showed that in both Treatment Group 1 and Treatment Group 2, attrition rates were reasonably low.

Table 7.18

Multivariate and Univariate Analyses of Variance for My Class Activities Questionnaire

			Univariate			
Source	Multivarite		Interest	Challenge	Choice	Enjoyment
	df	*F*				
Treatment Group (G)	4	9.11**	21.74*	17.39*	33.55*	12.03*
Time (T)	4	175.79**	408.04*	565.73*	418.63*	163.07*
G x T	4	3.81**	2.01*	.14*	9.82*	6.52*

Note. Multivariate *F* Ratios were generated from Pillai's Statistics.
Multivariate $df = 4, 3{,}590$, Univariate $df = 1, 3{,}593$.
$^{*}p < .01$ with Bonferroni adjustment, $^{**}p < .001$.

Table 7.19

Results of Discriminant Function Analysis—My Class Activities Questionnaire

Predictor Variable	Correlations of Predictor Variables With Discriminant Function	Univariate *F* (1, 3,803)
Interest	.69	21.74*
Challenge	.57	14.87*
Choice	.99	44.85*
Enjoyment	.60	16.62*
Canonical R	.11	
Eigenvalue	.01	

*Significant variables at $p < .01$ with Bonferroni adjustment.

Table 7.20

Means and Standard Deviations on the 4 Factors of My Class Activities Questionnaire by Group and Time

Factor	Treatment Group (*N* = 2,043)				Comparison Group (*N* = 1,552)			
	Pretest		Posttest		Pretest		Posttest	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Interest	2.81	.73	3.09	.83	2.72	.69	2.96	.81
Challenge	2.84	.68	3.15	.78	2.76	.63	3.06	.75
Choice	2.37	.76	2.71	.87	2.28	.73	2.53	.89
Enjoyment	3.11	.86	3.34	.97	3.06	.81	3.21	.97

Table 7.21

Attrition Rate by Treatment Group and Condition—Implementation Strategies Questionnaire

Treatment Group	Group	Pretest	Posttest	Attrition Rate (%)
Treatment 1	Treatment Group	1,266	1,093	13.66
	Comparison Group	813	732	9.96
Treatment 2	Treatment Group	1,108	1,105	0.27
	Comparison Group	916	916	0

Teachers' Assumptions and Stages of Involvement

Research Question: Is there a significant difference between pretest and posttest scores with respect to Teachers' Assumptions and Stages of Involvement?

A repeated measures MANOVA procedure was conducted to examine the differences between pretest and posttest scores on the Teachers' Assumptions and Stages of Involvement Survey. Time (pretest vs. posttest) was the within factor. Two dependent variables were included in the data analysis: Teachers' Assumptions and Stages of Involvement. Because Items 2 through 5 from the Assumptions Survey were problematic, they were omitted from the data analysis. A total of 178 cases were included in the data analysis, which indicated a significant difference between pretest and posttest in the combined two variables $F(2, 176) = 65.79$, $p < .0001$, $\eta^2 = .43$ (Table 7.22). As shown in Table 7.23, the follow-up univariate tests indicated that the posttest means for both dependent variables were significantly higher than the pretests. The means and standard deviations of these variables are shown in Table 7.24.

Table 7.22

My Class Activities Questionnaire Teacher Assumptions and Stages of Involvement

Source	Multivariate		Univariate	
	df	*F*	Teachers' Assumptions	Stages of Involvement
Time	2	65.79**	21.63*	123.88*

Note. Multivariate *F* Ratios were generated from Pillai's Statistics.
Multivariate $df = 2, 176$, Univariate $df = 1, 177$.
$^{*}p < .02$ with Bonferroni adjustment, $^{**}p < .001$.

Table 7.23

Results of Univariate *F*-tests on the Teachers' Assumptions and Stages of Involvement Survey

	MS	*df*	*F*
Teachers' Assumptions	1.40	1	21.63*
Stages of Involvement	6.59	[illegible]	123.88*

$^{*}p < .001$.

Table 7.24

Means and Standard Deviations on the Teachers' Assumptions and Stages of Involvement by Time

	Pretest		Posttest	
	M	*SD*	*M*	*SD*
Teachers' Assumptions	3.12	.34	3.25	.36
Stages of Involvement	2.67	.36	2.95	.31

Implementation Strategies Questionnaire for Teachers

Research Question: Is there a significant difference between pretest and posttest with respect to Implementation Strategies Questionnaire for Teachers?

A paired *t*-test was conducted to examine the differences between pretest and posttest scores on the Implementation Strategies Questionnaire. A total of 166 cases were used for the data analysis. The results indicated that there were significant differences between pretest and posttest scores $t(165) = -7.54, p < .0001$. Mean scores indicated that posttest scores ($M = 3.22$) were significantly higher than pretest scores ($M = 2.99$) (see Table 7.25).

Table 7.25

Means and Standard Deviations on the Implementation Strategies Questionnaire by Time

	Pretest	Posttest
M	2.99	3.22
SD	.39	.37

Assumptions Survey for Liaisons

Research Question 1: Is there a significant difference between pretest and posttest scores on the Assumptions Survey for Liaisons?

A paired *t*-test was conducted between pretest and posttest scores on the Assumptions Survey for Liaisons. Only Treatment Group 2 participated in this test because Treatment Group 1 did not have on-site training and the pretest. There were no missing values for the 24 liaisons who completed the pretest and posttest. Items 2 through 5 were omitted from the data analysis due to some misinterpretation of the items and Item 1 was recoded because of its negative stem. Pretest and posttest scores were transformed because of their negative skewness. The *t*-test indicated that there was no significant difference between pretest and posttest scores $t(23) = 1.772, p = .09$.

Research Question 2: Is there a significant difference between Treatment Group 1 and Treatment Group 2 on the Assumptions Survey for Liaisons?

An independent *t*-test was performed between Treatment Group 1 and Treatment Group 2 with respect to their pretest scores on the Assumptions Survey for Liaisons. A total of 49 liaisons (Treatment Group 1 = 25, Treatment Group 2 = 24) participated in the survey. Items 2 through 5 were omitted from the data analysis and Item 1 was recoded because of its negative stem.. The *t*-test result indicated that there was no significant difference between Treatment Group 1 and Treatment Group 2 on the pretest of the Assumptions Survey for Liaisons $t(47) = -1.714, p = .09$. Both groups held similar views about the percentage of gifted students who may need services in different educational settings.

Summary

For the teachers, liaisons, and students who responded to multiple instruments designed to monitor possible changes in instructional and curricular approaches in classrooms, we analyzed their self-report data carefully. We understood the limitations of the self-report data; therefore, other data collection and analysis techniques were created as additional documentation, as described in the next few chapters. Tracking changes in classroom practices through self-report data was difficult, yet necessary.

Overall, there were both significant and subtle changes in classrooms resulting from the implementation of modification, differentiation, and enrichment strategies. There were some differences by Treatment Group. Reasons for these differences are speculative. It is possible that teachers and liaisons who dropped out of the study resulted in the retention of those who were more invested in the research. The differential drop-out rates may have influenced the findings. We followed up with liaisons when we were notified that teachers were not continuing with the study. Most times the reasons were beyond our comparison (e.g., moved out of the district, on leave, changed to different grade level). This leads us to speculate that we can view our findings with reasonable confidence.

Changing practices that are very familiar and comfortable is a process that is not always greeted with excitement. Teachers involved in this study made a commitment to their own professional growth and development. Their years in service varied considerably, but this was not a reason for potential changes in practices. Each person had to make a commitment to try something different in his or her instruction and curriculum. Liaisons were there to help; however, their level of providing feedback and resources varied. Therefore, the change process was truly in the hands of each and every teacher.

CHAPTER 8: Case Description of One Site Involved in the Research Study

Carol L. Tieso

> *I felt I finally trained a cluster of people who would follow through.*

General Description

Site one is located on the urban fringe of a mid-sized city in New England. The liaison who participated in the study received a packet of materials from the University of Connecticut, but did not participate in the training institute. The school district identified a formal definition of giftedness that guides identification and programming decisions. The district also maintains a provision for the acceleration of students, but first encourages teachers to provide enrichment material within the regular classroom.

The liaison is a full-time gifted education teacher and coordinator with 26 years of teaching experience. She has a Master's Degree and teaching certificate in Gifted and Talented Education degree from the University of Connecticut. Her gifted program is based on the Schoolwide Enrichment Model (Renzulli & Reis, 1985) in which students are pulled out of their regular classroom for instruction.

Initial Professional Development Training

Training for the teachers participating in the study occurred during a 6-hour, full day session at the district central office. Substitutes were provided for the teachers, who also earned professional development credits. Any interested staff members were also invited to the initial training session.

The initial teacher training included an overview of the major principles, concepts, and examples included in the "Big Red Notebook," the self-contained module for professional development in modification, differentiation, and enrichment strategies. The liaison suggested that some teachers were initially overwhelmed by the volume of material in the training. Most teachers felt the strategies were "sensible and operational" and a good fit with the instructional philosophy of the school. The liaison also felt the quality of the materials was outstanding, and she was excited about the teachers who had volunteered for the study. "I felt I finally trained a cluster of people who would follow through. The results of the workshop could only mean positive effects for the students in their classrooms." She also suggested that if she had considered the training more carefully, she would have spaced it out over several shorter sessions to give teachers the opportunity to absorb the concepts imbedded in the training.

On-going Technical Support for Teachers

During the first year of the study, the liaison offered additional meetings before and after school with participating teachers. She often provided teachers with supplementary resources and readings, as well as assistance with study documents and paperwork. She helped them decide upon a strategy to implement based on their unique classroom needs.

First Year Update

The liaison planned a fall update to refresh and refocus teachers' attention on the goals of the study. Teachers were provided with substitutes and professional development credit for a 3-hour workshop to review research study materials and discuss enrichment options for Year Two of the professional development study. The liaison scheduled personal conferences with each teacher to review the strategies and decide if they'd like to try a new strategy or enhance their previous choice for Year Two of the research study. Further, she set up a resource library in her classroom from which teachers could check-out materials to use in their curriculum development.

Strategies Chosen by the Treatment Teachers

Four of the treatment teachers chose differentiation as an implementation strategy and one chose modification of existing curriculum. The liaison supplemented NRC/GT study materials with additional resources. The liaison suggested that teachers needed guidance in determining which strategy to implement and how to use that strategy within their own curriculum development process. She further indicated that the major problem the teachers had in selecting a strategy was the lack of focus that the teachers had on their learning goals and objectives. She indicated that teachers often created curriculum units based around activities without a guiding objective or goal to thread throughout the unit. She suggested that the NRC/GT materials helped teachers see "the big picture" when developing curriculum units for their classes. She also observed that one of the biggest challenges for teachers was to change from using direct instruction to using inductive methods with their students. She suggested that teachers are comfortable with whole class instructional strategies in which the teacher is the focus of attention and activity. When teachers implemented a new strategy for the research study, they may have also implemented a new form of classroom grouping arrangement or management strategy.

Implementation of the Modification, Differentiation, and Enrichment Strategies

Treatment teachers in the professional development study could choose from among six strategies to implement in their classrooms: Modification, using an existing curriculum unit; Differentiation, using open-ended activities; Differentiation, using alternative activities; Differentiation, using tiered activities; Enrichment, using curriculum compacting and interest-based curriculum activities for some students; and Enrichment, using the Enrichment Triad Model in the classroom for all students. Because the liaison had implemented the Enrichment Triad within the part-time gifted program, most teachers chose either Modification or Differentiation as their strategy.

The following brief descriptions illustrate the teachers' approaches to modification/differentiation/enrichment (MDE). B is a grade 2 teacher who implemented differentiation through tiered assignments in the subject areas of language arts/reading. B requested various observation checklists and assessment materials to use with her curriculum units. After pretesting a unit in math, one student was targeted for enrichment activities. She observed that six other students could also acquire the skills at a quicker pace so she made enrichment activities available to them as they successfully completed their regular lessons. B suggested that her students became more inquisitive and began asking more thoughtful questions after encountering the enrichment materials.

C is a grade 3 teacher who chose Differentiation, using tiered activities, to extend and add depth to her unit on Native Americans. She expressed concerns about the actual implementation of these activities. She thought that students needed more time to ease into the various activities. She used the strategy to provide enrichment activities and offer options for the whole class and challenge high ability students to extend their knowledge and utilize their interests and talents. She also offered a modified Type III (Renzulli, 1978) activity to all students for a unit on mining and port communities. She wanted all of her students to have the experience and opportunity to explore a topic, while allowing for personal interest and talent exploration. She suggested that students of all ability levels create products and present their research to one another after researching, taking notes, and writing original reports. One of the problems she encountered was the lack of physical space within her classroom for group work. "My room area was not large enough. Students didn't have enough quiet spots to write. We ended up using the library area when it was available."

G is a support teacher who targeted one grade 5 class to implement Modification, using an existing curriculum unit. She decided to modify an existing unit to make it more engaging and thought provoking for her students. The liaison said that G's self-awareness of her own teaching strategies and awareness of the different elements of a lesson plan became evident. "G has truly experienced a paradigm shift in her approach to teaching." G explained that she planned to retire prior to her participation in this study, but the study inspired and motivated her to continue teaching a few more years. G described her curriculum adaptations:

> In past years, I found that I was being repetitive in my units and growing frustrated because there was never enough time to go beyond the basics of a unit. I felt that the best method of teaching [subject] was lecture—I could get more info out in a shorter time. I attempted to have as much discussion as I could with students, but found that the same half dozen dominated the lessons. It was difficult for me to know how all the other students were doing in my class. I found that by using the "What I know—what I need to know" strategy, I discovered that some previously taught material could be reviewed quickly and this gave me more time to go beyond basic information.

G suggested that her self-esteem unit always seemed disjointed to her, and she felt that something was missing in the unit. The liaison helped her see the big picture within her unit, and G said, "I actually had a 'light bulb' go off and saw the big picture rather than all these individual ideas." Students were given choices as to which homework form to complete (students were given 3 choices of homework, one was written, one was creative, one was analytical). Some of her class activities included individual goal maps and students' ownership of homework in a bulletin board activity. The goal map activity asked students to complete a concept map of the concepts and principles of a specific unit of study. From this, G was able to differentiate her project assignments based on students' levels of prior knowledge. For the bulletin board activity, rather than G creating the board, she asked students to contribute to the information. Students created persuasive posters to advocate their personal points of view on the topic. In using these new strategies, G was able to transform her teacher-centered classroom into a student-centered one.

S is a grade 1 teacher who chose Differentiation using alternative activities as a strategy to implement with seven students in her class. She developed tiered activities to extend and add depth to her math curriculum. She felt this was an area in which many of her students had demonstrated strength. Students were able to choose one form of transportation and to explore it more closely. Children were placed in small groups and given alternative activities to broaden their knowledge of these vehicles. She suggested that her most difficult obstacles were determining how students will be assessed, and gathering materials needed to give students resources to complete their projects.

T, a grade 1 teacher, chose Differentiation using alternative activities and tiered activities as strategies to implement. She has created a set of tiered activities directly related to a story in her reading series. T had students work in interest groups to learn about transportation: land, water, or air. She invited other teachers (art, music, grade 3) to share their expertise, and she allowed students to express themselves in these diverse areas. T suggested that the most difficult challenge she faced was how to assess students who complete different activities and assignments. She created two "Tic-Tac-Toe" (Winebrenner, 1992) lessons each with nine activities for the story, *The Snowy Day.* On one side of the sheet are activities that she expects all first graders to do, and on the other side of the sheet lists activities that some students will be able to do.

Challenges for Teachers

The liaison indicated that the teachers faced several challenges that made implementation of the strategies more difficult. These included: discomfort with decision making about their curriculum, difficulty locating supplementary resources for enrichment and alternative activities, difficulty finding extra time for individual and collaborative planning, and difficulty finding the "big picture" through the haze of activity-driven lessons.

Reactions From Administrators

The principal at site one was supportive of teachers' participation in the professional development study. Teachers indicated that many of them had shared all the materials (both study resources and student artifacts) with their administrator, who was "extremely pleased with the results," delighted the project was taking place in her building, and confident that "classroom teachers and students could only gain from materials." Additionally, the principal wanted to nominate the team to the *USA Today* for the Best Practices and Teaching Award. Finally, the principal asked the liaison to write a grant to continue this professional development with additional colleagues in the district.

Impact on Students and Teachers

The liaison and treatment teachers summarized the effects of the training and participation in the study on teachers and students. The liaison suggested that

> Teachers are thinking more about the purpose of their lessons, about why they are teaching what. They are also thinking more about the delivery system (e.g., less talking and more activities that foster active participation from students). They are taking information from theory to application.

Teachers said that students were now given more choices in materials, resources, and products related to their interests and abilities. They also indicated that students appeared more motivated when allowed more choices. They further indicated that they no longer viewed curriculum as they had in the past. They recognized students' differences in learning styles, expression styles, and abilities. "Everyone is realizing that 'one size fits all' is not effective education."

Big Red Notebook as Professional Development

The liaison and teachers at site one had positive reactions to the "Big Red Notebook" as a source of professional development. They also recognized the need for on-going collegial and technical support during the implementation of a new strategy. The liaison indicated that she used the "Big Red Notebook" to train many more teachers throughout the district in the strategies of Modification, Differentiation, and Enrichment. She noted that the notebook is extremely comprehensive and easy to use, whether she used the entire book or just one section. She also suggested that the script brought out the "important concepts from each section." Finally, the liaison suggested that she had "referred to the 'Big Red Notebook' often" and would continue to do so in the future. She thought that it was "an extremely valuable tool for professional development."

Summary

The case description of one site involved in the research study provides a brief glance into the process of how the professional development module was reviewed, studied, and implemented with a small group of teachers who willingly participated in experimenting with one or more of the strategies to modify, differentiate, or enrich the curriculum. The description points out how important it was to have administrative support and flexibility in arranging for additional coaching and access to resources to enhance teachers' use of the strategies. Teachers supported each other as they thought about how they could improve their curricula and find time for individual and collaborative planning. At this site the principal was so supportive that she asked the liaison to continue this professional development approach with other teachers after the research study was completed. She had first-hand knowledge of the implementation process as she observed classrooms, talked with teachers, and reflected on the purposeful lessons, level of student involvement, and increasing confidence in "taking information from theory to application."

CHAPTER 9: Professional Development Module—Qualitative Findings From Teachers' Portfolios

Susan T. Dinnocenti

> *When teachers are peers and their doors are open, so are their minds and their hearts. In working together with honest, trust, and humor, new bonds have been formed—by everyone involved in this study—coaches, teachers, kids, and concerned administrators.* (NAGC Convention Transcript, 1999, p. 27)

Classroom portfolios sent to the NRC/GT from January 1998 through June 1999 contained materials that reflected the strategies selected by the teachers. Some comments associated with the implementation of strategies were positive, some people expressed frustration and discontent, and others expressed a need for assistance with classroom management.

With an initial sample of 285 treatment teachers and a requirement to submit 3 teacher portfolios per year over the course of the study, the amount of portfolio data received can be visualized as 25 overstuffed drawers packed inside five steel filing cabinets placed along a wall at the NRC/GT. To support triangulation of the data, all portfolios were reviewed by extensive document analysis, on-site interviews were conducted by independent and in-house researchers, and inter-rater portfolio review was conducted. Through these processes, common themes emerged during the implementation of the study.

Emergent Themes

The following sections contain teacher comments that illustrate both emergent themes and examples of how teachers described the implementation of their chosen study.

Themes that emerged when implementing one of the strategies included:

1. Time was a constraint when trying to implement a modification/differentiation/enrichment (MDE) strategy.
2. Time was said to be "found" while implementing a MDE strategy.
3. Teachers realized both professional and personal growth.
4. Student-centered classrooms emerged throughout the implementation of the study.
5. Classroom management skills were a necessity.
6. Administrative support for implementation in schools varied.

Time Viewed as a Constraint

Nearly every teacher mentioned "time" as the most important commodity in their daily routine of classroom duties. The majority of the teachers who expressed time as a constraint indicated that they did not have enough time to plan and prepare for instruction.

Planning

For some teachers at the middle and junior high level, the cycling of students in and out for a 43 minute period was a challenge in and of itself, especially if the content was science and involved lab explorations. As participants were asked to extend their teaching repertoire by adding a MDE component, some teachers described the addition as another challenge.

> The greatest challenge is gathering all the materials, having "explaining time" connecting their work and evaluation. (Teacher # 99)

Other teachers however, stated their opposition in not being able to do what they wanted in the classroom due to new way of organizing their instruction as well as their class materials.

> This takes a lot of time that science teachers don't have. Science requires a lot of hands-on, lab equipment, preparation of chemicals, etc. When do you have time to do things the way you want. (Teacher # 76)

Assistance

Other teachers suggested that time was a problem when they tried to get around to help the various groups of students they had formed. The strategy they selected for the study may have involved using flexible groups based on ability, interest, or pre-assessment results, which became a challenge. One teacher stated that it was difficult "Trying to keep up with the daily grading, corrections, and conferencing with the students" (Teacher # 504).

As teachers began to incorporate a chosen MDE strategy, they often suggested that having another set of hands may have been helpful coordinating the activities in the classroom. A second grade teacher admitted, "I will be challenged by time management–1 teacher–26 children–coordination of meaningful activities and choices" (Teacher # 95). Although the teacher commented on the ratio of teacher to students, the premise of MDE is to elevate instruction by developing a student-centered classroom where students are self-directed and responsible for many facets of the instructional process.

Time Lost

With the addition of differentiated strategies, teachers quickly became aware of the multiple classroom management skills that would have to be mastered to provide for those students who had demonstrated mastery in a content area and were exploring the depth of a content area or working on independent projects. One teacher who chose to compact a particular student's curriculum due to his high level reading skills, realized that in arranging her curriculum, she needed to know where she wanted to go with the instruction and have the plan formulated for all learning levels before beginning the lesson or the students' learning time may be compromised. She commented:

> I think my greatest challenge is always time; time to conference, time to set up arrangements, and time to manage what "he" [one student] is doing as a compacted activity that is worthy of "his" [one student's] time. (Teacher # 12)

"Time" was constantly mentioned as an obstacle in terms of not having enough of it to plan instruction and arrange materials or utilize it in an optimal way to service their students. Other teachers explained that "time" became an ally when they incorporated differentiated strategies.

Time as a Benefit

Teachers who had reorganized their classrooms to include flexible grouping, tiered lessons, or other strategies defined in the Big Red Notebook commented about the amount of quality time other children gained during the course of the day when they implemented the strategy successfully. Other teachers, who were engaged in scaling up their instruction, desired more time to collaborate with their peers and stated how they would use this common planning time.

Time Gained

One teacher observed her students becoming more resourceful, reflective, and responsible for their learning as she explained that higher level thinking skills were being utilized by the students. The following quotation expresses her viewpoint:

> Through the teaching strategies highlighted in this program, students were able to gain experience in decision making when choosing activities/topics, they also took additional time to research interest-based topics, and had opportunities to practice long-range planning. (Teacher # 106)

For those students who were not ready to advance to the next skill level in a particular learning activity, a teacher noted that the students demonstrated confidence in having extra time to practice the basic skills. The teacher stated that students had, "more time for repetition on the basic level, thus higher success rate" (Teacher # 96). Although the repetition of skills may not have been appropriate for all learners, some English Language Learners or struggling learners benefited from being able to practice certain basic skills at their own pace. The teacher had arranged the learning experiences around her learners' readiness levels and her students were successful.

Time Needed

Many teachers expressed a desire to have more time for collaboration and reflection with colleagues. With the implementation of strategies requiring documentation for the NRC/GT, teachers were concerned with wanting to "get it right" and many of them wanted to bounce off ideas among their colleagues before mailing in their portfolios. Teachers expressed some ideas of how they would utilize common planning time in the following excerpts:

> Time for planning and collaborating. Co-teaching with G/T teacher. More examples of how other teachers have written lesson plans to MDE. (Teacher # 15)

> Have more time to meet and discuss with colleagues. I always feel like I get my best suggestions and ideas from other teachers. Having time to sit, talk, and share ideas is time well spent professionally. (Teacher # 34)

> Time is the ever-present challenge. Teachers do not have enough time to work on curriculum units, to allow for in-depth development of new units, or to modify existing units in one school year. To be able to do that takes fine-tuning over two or more years of use. (Teacher # 534)

Similar comments were written in many portfolios indicating that time to discuss strategies about content and classroom management was not available or used.

Professional Growth

Many of the teachers had volunteered either to extend their teaching skills, revisit strategies that they had not used in awhile, or become participants in the research study as a favor to the liaison in their school. Regardless of their initial reason, many teachers described their experiences as having strengthened them both professionally and personally.

Change in Teaching Methods

Teachers admitted to having stepped out of old instructional routines to explore additional teaching methods and they also broke away from teacher-directed classrooms to a student-centered approach. One teacher, who thought about retiring before the study began stated, "It has helped me focus on methods other than lecture as ways to accomplish goals. . . . I have been energized by my involvement in this project and am grateful to have had this opportunity. Thank you" (Teacher # 634).

Another teacher, who had been teaching for 18 years, made a personal need assessment of her old thinking and vowed to begin again:

> I made a very good beginning to conduct a classroom that has children engaged in meaningful learning. I have begun to break out of the thinking that has dominated for years. I am giving myself permission to make decisions about my children's learning needs based on what I really observe. (Teacher # 86)

Personal Growth

Teachers who actively implemented one or more of the MDE strategies and took the time to reflect on what differences they saw in their students explained that they, too, became different teachers both inside and out.

> I have enjoyed using all of the strategies in some form in my classroom. They have brought new life into my teaching and excitement into my classroom. The strategies have given me a better insight into assessing my students and their individual strengths and interests. It has also pointed out in which way they like to express what they have learned. (Teacher # 635)

> The positive self-esteem of my students wore off on me—making me feel positive about my teaching. (Teacher # 652)

Understanding MDE

Aside from teachers' testaments about viewing their teaching in a new way, a few teachers expressed how they were able to work through their new understanding of the relationship between curriculum, instruction, and assessment:

> Planning and implementing these strategies made me more conscious of: What I was doing and why I was doing it. Who I would reach/challenge. How to identify, select and group students using pretests and other informal assessments. Why it's important to share activities, units, etc. with other teachers. Why it's valuable to always reflect on learning and evaluate the outcome. (Teacher # 106)

> Using the strategies also seems to give a sense of "knowing" you are doing your best, because you are meeting individual needs instead of teaching a "canned"

> curriculum to all, whether they need it or not. It does require extra work, but I feel it is worth the extra time. I think the more you work with these strategies, the more competent you become and thus the time spent lessens. (Teacher # 514)

Greater Expectations for Students

The teachers quoted above became aware of what needed to be changed in their approach to instruction, acted upon it, and benefited by the lessons they learned. Other teachers stated exactly what they had learned and shared what changes they would make with their students.

One teacher stated that, "I learned that my students were ready to take the challenge. I need to 'let go' of some control and put more responsibilities on the learners" (Teacher # 548), while another teacher stated, "I have learned to expect the unexpected. Many students that I thought would not stay on task performed beautifully. As a teacher, I need to continually increase my expectations of my students" (Teacher # 549).

The strategies implemented by the teachers did more than address learner interests and ability levels for meaningful instruction, they triggered personal and professional reflections that resulted in a list of I wills. . ., affirmations of allowing oneself to do what is best for students, and some simple lessons that are so easily forgotten in the rush of a school day, namely, letting go and increasing expectations for all students.

One teacher enumerated on what she would do throughout the instructional cycle:

> I will continue to pretest and activate background knowledge before the start of every unit. I will continue to assess my students' interests as well as knowledge level. I will continue to assess my lessons for the following: Do products assignments differ. . .? Do my work groups offer flexibility. . .? Do my students feel challenged by the material presented? I will continue to discuss, debate, gather differentiation ideas with co-workers. (Teacher # 535)

Professional growth was multifaceted for the teachers in the study as they experienced a new joy in teaching that resonated throughout their comments and in how they viewed their students. The teachers now looked for ways to be more flexible in arranging instruction, more knowledgeable in leveling their learning activities to accommodate students' abilities and interests, and were more open in allowing themselves to become a guide to students instead of trying to control the learning process.

Student Centered Classrooms

As has been stated many times throughout the previous sections, teachers wrote about how implementing a MDE strategy prompted them to view their students differently. They realized that students could be responsible for their own learning if given the opportunity and the teachers took an active role in making changes in their instructional approach.

Student-centered classrooms, as defined by teacher participants, were active places where students were working at a level commensurate with their ability for a particular content area as reflected on a pre-assessment. They were classrooms where students were excited about their learning and were eager to share their discoveries with other peers in flexible or small groups. These classes were reflective, they became places where both teachers and students could discuss their learning processes and reassess what additional skills were necessary to get to the next level. Teachers' comments illustrated how a student-centered classroom was successful;

> Students were challenged at all levels. Students were engaged in meaningful tasks. Students were successful at all ability levels. (Teacher # 603)
>
> Students are making connections to what they are reading! They are not at a frustrated level so they are experiencing great success. (Teacher # 532)

Other comments described how students were now using higher level thinking skills to extend their learning:

> My students and I have been pleasantly amazed with this poetry unit. It has caused the students to think more extensively. (Teacher # 599)
>
> This strategy let me observe my students as problem solvers. It gave me the opportunity to view them using their strengths and talents to complete their tasks. (Teacher # 653)

However, the most powerful statement from a teacher who explained the differences viewed in his students when they had more responsibility in the learning process was that, "They loved learning! They begged to do the work" (Teacher # 587). Almost every teacher who commented that their students were engaged and excited to have choices in learning expressed surprise and amazement that ownership of learning could bring about such a positive change. In trying to determine why these teachers were so amazed at how and why students get so excited when they have ownership of their learning, portfolios were re-examined to search for comments illustrating what methods teachers were using in the classroom before the study.

After careful review, only a few teachers had expounded on former ways of teaching when they implied that ". . . using these strategies is better than lecturing," or "I've really only been comfortable with whole class instruction." It may be that some lecturing in classrooms lessened or that some whole class instruction was broken down into small groups based on ability, interest, or social factors, but to suggest that happened in all classrooms would be misleading. Regardless of how student-engagement occurred, the teachers who noticed vowed to make it a foundation on which to build their new skills.

Classroom Management

Other teachers were not as successful with their classes when implementing MDE strategies. They expressed difficulty in grouping students, working with heterogeneous classes, managing discipline, and finding a way through organizational challenges associated with their chosen strategy.

Frustration

Some teachers admitted that it was frustrating to have students work in groups because it took away the control from the teacher. One particular teacher stated that it was difficult to get used to groups of students solving the same problem in different ways: "Tolerating how various groups had different styles in solving problems (i.e., giving up total control) and letting the kids gain confidence in group interaction" (Teacher # 7).

Three other teachers, who stated they were frustrated, described situations where certain students did not work together well when they chose their partner, or their students would argue, or their students would not focus unless the teacher was standing over them.

> Dealing with LD and BD students in the same class. The impact on the teacher was frustration. The girls in my class work well together, but the boys do not. I let them choose partners. (Teacher # 77)
>
> Getting students to work together without arguing. (Teacher # 22)
>
> I had many students this year that had a hard time staying focused without me standing at the front of the room "lording" over them. (Teacher # 610)

These comments of frustration left many unanswered questions. What was the instructional goal of the group activity? Were the groups based on ability, interest level, or were they for social reasons? Did the lesson or unit begin with a whole class introduction for the content to be explored? Were students taught the skills of how to work in groups? Were all members of the group responsible for the same outcome? How were the strengths of each group member utilized?

Answers to some of these questions may have provided a better understanding as to why the teachers were frustrated and the students demonstrated the suggested behavior, but the narratives from the portfolios did not offer those insights.

Varying Degrees of Support

The initial invitations sent to the districts that took part in the study requested that administrative support be given to both the liaison and the teachers as they implemented the MDE strategies in the classroom. Districts and schools determined how release time for training would be arranged and principals decided how the implementation of strategies would be supported for their individual schools. Yet when teachers were asked about administrative support, most of the answers were either left blank or were not positive. Teachers did have encouraging statements about their trainers, the liaisons, and the support that they offered throughout the study.

Non-existent Support

When asked, "What kind of support have you received from your principal?" one teacher simply said, "None" (Teacher # 551). Another frequent comment addressed a turnover situation at some schools and the difficulty of not having consistency, "We haven't had a regular principal for most of the year—we had 2 interim principals until March" (Teacher # 594).

Positive Support

There were a few teachers who believed that the reason they were successful in implementing a strategy was because of the support from their principal. One teacher described her principal, as one would define a coach, a person who encouraged and supported change: "Our principal is the reason for wanting to effect change or modification. She is the most encouraging and enabling person I've worked with. She checked in on my unit. I utilized a tape of one of my lessons to ask her advice" (Teacher # 513).

Scheduling a common planning time, which one principal arranged with release time for two teachers, supported another teacher: "The principal provided release time for us to work on planning and execution of the project, which enabled planning time during the school day" (Teacher # 605).

Most statements associated with support, however, were directed towards the liaisons and how they assisted their teachers with questions, needs, and concerns. A representative comment to illustrate this type of support was, "My trainer is always there to answer any questions that arise and give insight into the situation" (Teacher # 503).

Summary

Many of the teachers' portfolios were a work in progress as they varied from the successes of watching students take ownership of their learning to daily challenges that included letting go of the "control" that teachers were accustomed. Teachers suggested that class time was a commodity that could be creatively utilized or quickly lost if planning of curriculum, instruction, and assessment did not revolve around learning outcomes and arranged with students' abilities, interests, and prior experiences in mind. Extending gifted pedagogy into regular classrooms as illustrated in teachers' portfolios, benefited not only students but teachers as well. Teachers described growing both personally and professionally by changing their routines and looking at their instructional methods with a renewed set of eyes.

CHAPTER 10: Professional Development Module—Qualitative Findings From Liaisons' Logs

Carol L. Tieso

Collegial coaching was crucial to the teachers experimenting with new strategies—crucial! With support and time, teachers were more willing to try something different.

Throughout NRC/GT's study of professional development practices, local liaisons had many opportunities to share their insights, successes, and struggles with researchers. This chapter is a summary of their comments on professional development practices, time restraints, classroom management issues, and growth for students and teachers alike.

Initial Professional Development Training

The professional development notebook provided for the teacher training contained guidelines for the number of hours of initial training (3-4 hours). Most liaisons noted that the training actually took much longer than the time specified, in some cases, up to 16 hours plus follow-up.

Teachers had mixed reactions to the initial training; most were excited and appreciative while others were overwhelmed. "Teachers were overwhelmed by the volume of material. One teacher became too distraught and has dropped out of the study" (Teacher # 70). The vast majority of teachers were engaged and motivated by the training materials. In most cases, the liaisons worked with a group of teachers who had volunteered for the professional development study. They were keenly aware that teachers had come to the training looking for specific strategies and methods to help meet the needs of able students.

> "The teachers were extremely enthusiastic and eager to have new information and strategies for their students. One teacher was overheard admitting, 'I have to be honest. I was dreading this today. But this is great! It was one of the best workshops ever!' " (Teacher # 66)

Liaisons were creative in connecting the training to what the teachers were already doing in their classrooms. "[The teachers] came alive during modification and differentiation; [we had] much discussion, questioning, planning using actual curriculum" (Teacher # 64). Finally, some liaisons suggested that teachers needed to see the rationale for implementing a new strategy or curriculum, as they are constantly bombarded with the reform "flavor-of-the-month." "The teachers need to see the reason and importance of learning a new strategy. The strategy then needs to be modeled and teachers need to apply it as soon as possible in the classroom" (Teacher # 201). In conjunction with this important rationale, liaisons also needed to offer on-going collegial coaching to be successful in the long-term implementation of the strategies.

Peer or Collegial Coaching

Liaisons initially offered on-going coaching and support to the teachers through weekly or biweekly meetings at lunch or after school. Then, fewer meetings with one or two follow-up sessions to review materials were offered. They indicated that most teachers would not have been able to successfully implement the modification, differentiation, and enrichment strategies without the on-going support of the peer coach and their teacher colleagues.

The liaisons suggested further that their role was often one of accountability. Teachers were motivated to continue with the implementation because they knew they would be responsible to their coach or colleagues. "I believe that coaching is the key to helping teachers implement new strategies. We all need someone to be accountable to. The coach keeps us from procrastinating and waiting for the right time to try things" (Teacher # 212).

Some liaisons also encouraged regular brainstorming sessions to share ideas and write curriculum:

- Conferencing with each teacher was useful. It allowed the coach to provide resources that might be helpful, redirect thinking if it was moving in the wrong direction and encourage teachers to keep working at their strategies. (Teacher # 212)
- Collegial coaching has been effective. As a coach I have been there to bounce ideas back and forth, provide support by doing some of the physical work, act as a cheerleader and bring the teachers together a few times for planning and celebrating. Also, knowing that someone else is counting on you inspires most people to complete their part of a task. (Teacher # 217)
- Coaching, coaching, coaching! It seems to me that the top priority is providing someone with whom to plan, someone who gives permission to do things differently, to help with teaching or skills training. (Teacher # 216)
- I feel that coaching is the key ingredient. One thing that makes me feel strongly about this is the fact that the teachers with whom I had the most interaction had the most success. (Teacher # 216)
- Collegial coaching was an effective method to use with teachers when they were learning a new strategy. My study teachers were able to learn from me and share ideas. We collaborated on projects and developed new lessons and units together. (Teacher # 201)
- Teachers were more willing to try a new strategy after talking it over with other teachers and coaches. They felt reassured when they knew they had someone to go to if the thing didn't work out as they had planned. (Teacher # 204)
- The best support has been our bi-monthly meetings in which the teachers exchange ideas. They first share what they have been doing and then the others in the group jump in and give ideas for improvement. This evolved naturally and my role has been one of a facilitator of the group. (Teacher # 56)
- I provided each teacher with a schedule of times that [he/she] could come to my room to meet with me and discuss strategies and check out materials. I offered suggestions and provided them with books on questioning techniques. The teachers at each grade level would confer with one another about their ideas and plans. (Teacher # 75)

In some cases, liaisons extended themselves far beyond the initial training and regular team meetings. Some taught demonstration lessons while others hosted weekend staff retreats. One group proposed a nautical theme, "Adjust the Sails," as a conceptual framework for their efforts. There was a continuum of coaching ranging from little contact to weekly meetings in conjunction with demonstration lessons and regular feedback.

> Collegial coaching worked well with most teachers. There were some who just wanted to do things the way they always have in the classroom. On the whole, teachers found it a positive experience. The key to coaching is the development of a positive, trusting relationship between the coach and the teacher.

Some liaisons were in different schools than the teachers, which made regular meetings difficult. "I have been emailing them to encourage them. I have visited each classroom and talked with them to choose a lesson to modify. I am observing their lessons, answering questions and offering support" (Teacher # 52).

Several liaisons suggested that the teachers would not have implemented the strategies beyond a superficial level without the on-going support of the liaison as a collegial coach.

> I believe the use of collegial coaching is a very powerful tool for effective change in terms of improving instruction. Unfortunately, it is not something teachers in our district are accustomed to participating in, and it was generally seen as intrusive at the beginning. But as the year went on, they realized that we were "here to stay" and became more accepting.

Liaisons also mentioned proximity and their own teaching load as keys to a successful peer coaching experience. The liaisons who worked in the same school with the teachers or had no regular teaching load had more positive coaching experiences. They also suggested that coaching was an effective strategy for those who struggle with the isolation of teaching in a small district with few colleagues.

> Very effective! This is the answer, especially in districts where there are so few of us on staff. Coaching is very effective, coupled with modeling. I believe that to sustain change, some habits need to be "undone." Some strategies need encouraging— confidence in teachers—good work needs to be nurtured.

"I feel that coaching is the key ingredient. The teachers with whom I had the most interaction had the most success" (Teacher # 216). Finally, the liaisons who felt they had the authority or the teachers' respect had a more successful coaching relationship.

Obstacles to Implementation

Liaisons suggested that time, classroom management, a lack of true understanding of the strategies, and the difficulty of moving from ideas to implementation were difficult obstacles to the teachers' successful implementation of the modification, differentiation, and enrichment strategies.

Time

Virtually every liaison mentioned a lack of time as the biggest obstacle to successful implementation of the strategies; time to brainstorm and create unit plans, to collaborate with one's colleagues, to gather and prepare materials, and to allow students to explore their interests and projects to their desired ends. For example, one said, "TIME—time for planning; time to collaborate with one another; time to evaluate work" (Teacher # 74). Teachers were generally aware of the needs of their most able students, but had difficulty finding the time and resources to plan for these students. They also had trouble pacing materials so students in the different ability groups would finish group tasks at the same time. A couple of teachers expressed this in the following way: "Time to meet with their students—the strategies are helpful but cannot take the place of a G/T teacher unless there is coverage for classroom teacher" (Teacher # 213). "Time, time, time—it takes time to see something in a new way and support is necessary. Time to create instruments, plan management when 25 things are going on" (Teacher # 216).

Liaisons also mentioned that teachers viewed strategies of curriculum compacting and differentiation as something in addition to their regular curriculum, rather than as a vehicle for implementing the regular curriculum. Further, they struggled with meeting the needs of the various flexible groups of students. Finally, some teachers resisted the new strategies because they saw them as another constraint on their limited planning time. "Not enough time to implement new lessons . . ." (Teacher # 201). While teachers were comfortable with the strategies, they seemed to struggle with justifying the time away from the regular textbook. "Finding time to work with several groups at once was one difficulty. For others, it was time and energy involved in 'doing something different.' The strategies used were more demanding of their time" (Teacher # 207).

> Pacing and time management were somewhat of a problem for all teachers. We are heavily invested in [state-mandated standards] monitoring and testing. While teachers were comfortable with the strategies, they seemed to struggle with justifying the time away from the regular textbook. Teachers viewed using the strategies in curriculum development as additional planning responsibilities to burden already busy schedules. (Teacher # 205)
>
> Time—while most were in agreement and could articulate the benefit of using one or more of the strategies, they had not moved from a position of what was easiest for them to what was best for the students and that it might take more time and effort from them as a teacher. They also saw it as "an addition" to what they were doing rather than replacing other practices that may not be as productive. (Teacher # 65)

Classroom Management

Classroom management was also a major factor in the success or failure of the strategies. When teachers were asked to use curriculum compacting or create flexible small groups within the classroom, the use of the strategy required a move away from familiar whole class instruction to a more difficult and challenging method of classroom management. "Class management planning [was difficult] if they were not used to managing small groups and individualization" (Teacher # 51). "Many teachers struggled with using preassessments to group students and providing them with appropriate instruction." Some teachers resisted using the flexible grouping practices due to concerns over classroom management that was already working successfully for them. "Classroom logistics—how to have the students physically arranged, how to group and how to manage new grouping routines [was a problem]. Classrooms run smoothly due to these routines—changing them should not be taken lightly!" (Teacher # 51). Some liaisons suggested that implementation of the strategies would be simplified if their students were grouped homogeneously based on ability in the particular subject. "Homogenous grouping would make differentiating and developing activities easier" (Teacher # 213). Other liaisons offered that teachers already felt burdened by the requirement that they address the different learning and behavioral needs of students identified with special needs. "In mixed-ability classrooms with EBD, GT, LD, and others it is impossible for one person to be effective" (Teacher # 207). "Most of the difficulties the teachers encountered while implementing the strategies were time related: providing time for individual students, time for planning, pretesting, scheduling problems, time to meet with sub groups of children, time to work with colleagues" (Teacher # 218). "I think the teachers would say finding enough time to plan, teach expanded units and management were the greatest difficulties and they are true. I would say it is changing their way of thought about teaching" (Teacher # 216).

Progressing From Planning to Implementation

The liaisons also suggested that teachers did not have a thorough understanding of the modification, differentiation, and enrichment strategies, nor did they have a realistic view of the difficulty of moving a strategy from the idea to the implementation stage.

> They recognize that when trying to differentiate products, a strategy that typically comes towards the end of the unit, oftentimes a triage of the unit must be done to make their efforts worthwhile. In other words units have been in place which have questionable (or shaky) objectives, activities, etc., which need attention before one invests the kind of time needed to develop meaningful diverse products. They wonder if they should have chosen the curriculum modification strategy and been ahead of the game!!! They have to go there to begin anyway in many cases. (Teacher # 73)

Teachers understood the need to implement the strategies in their classrooms, but without support and feedback, they struggled with the actual practice.

> They see differentiated instruction as the way to show that they can meet the demands of all students in their classrooms. They have struggled with the implementation of the strategy because they do not seem comfortable in moving from the planning stage into the implementation stage. (Teacher # 76)

Additionally, teachers understood the strategies conceptually, but had trouble predicting what they would look like in practice. "In most cases, I doubt that teachers would have even attempted the strategies without this coaching help. Even after the workshop presentation they needed to have direct assistance/coaching. 'Hold my hand through this' was one teacher's request" (Teacher # 202). Teachers struggled most with differentiated instruction and the requisite need for flexible grouping practices. "The teachers felt that the key element was to differentiate the curriculum and plan for tiered assignments. Going from theory to practice was the difficult part. They found it much more complicated than they expected" (Teacher # 76).

Leadership and Growth

Some teachers experienced incredible growth and eventually assumed leadership roles within the study groups. One teacher distributed articles related to the current research on differentiation and enrichment teaching. Others tried collaborative teaching or served as "another set of eyes" as their colleagues piloted a new lesson or unit. Finally, some teachers assumed roles as advocates for the strategies they were using and developed a professional language to use with administrators and parents.

> A multifaceted impact occurred. Teachers were able to identify and label strategies they have previously utilized. It verified and validated past practices. It offered them the professional language to communicate with fellow teachers and professionalism when communicating with parents about providing for students' accelerated needs. (Teacher # 63)

Impact of Professional Development on Teachers

Liaisons suggested that the modification, differentiation, and enrichment strategies had an impact on teachers far beyond simple classroom practice. Teachers viewed curriculum development differently after the training; they examined their existing curriculum more critically and attempted to extend, enrich, and offer choices whenever possible.

> D is a teacher who targeted one fifth grade class to implement strategies in. She decided to modify an existing unit to make it more engaging and thought provoking for her students. Her self-awareness of teaching strategies and [the] elements of a lesson plan have become evident. D has truly experienced a paradigm shift in her approach to teaching. (Teacher # 70)

Teachers recognized students' differences more readily than prior to the training. They also realized that the "one-size-fits-all" curriculum didn't fit everyone in their classroom.

> Use of the strategies has made classroom curriculum much more individualized. Teachers are taking into account the differences in students. They are trying to better meet the needs—ability wise—have become more creative in developing options for these students. There has been an increase in awareness of the purpose of their lessons and the concepts being taught. Definitely thinking more "out of the box." (Teacher # 70)

Teachers also recognized that when they had provided differentiated activities in the past, the activities were geared towards the struggling learner. After the training, teachers created curriculum that was more challenging, allowing expectations to rise congruently.

> If used correctly and consistently, these strategies help teachers to improve the curriculum and provide students with a more stimulating and engaging curriculum. The students took more ownership of their learning and were more excited about what they learned. Many of these strategies help teachers instruct students who are on various ability levels. [If the strategies are] used properly, students can be challenged at their level rather than the ability level of the most needy. (Teacher # 201)

Shift in Thinking About Curriculum

Liaisons also suggested that some teachers underwent a true paradigm shift in their thinking about curriculum. Teachers who considered retirement were energized by the use of these strategies and the effects on their students. Other talented, yet reluctant teachers, were motivated by the students' new sense of motivation and excitement. Finally, teachers who were already among the most proficient practitioners in their districts, emerged as sources of inspiration and leadership. "I think the teachers will always consider these strategies when doing their planning. I do believe that they 'see things differently' now" (Teacher # 76).

> Teachers are thinking more about the purpose of their lessons, about why they are teaching what. They are also thinking more about the delivery system (e.g., less talking and more activities that foster active participation from students). Everyone is realizing that "one size fits all" is not effective education. (Teacher # 70)

Liaisons also suggested that the successful implementation of modification, differentiation, and enrichment strategies allowed teachers to increase their self-efficacy, sense of empowerment, and pride in their sense of professionalism. "I believe that these teachers feel 'empowered.' The high ability students are finally having to engage their brains instead of coasting to their 'As' " (Teacher # 55).

Impact on Students

The implementation of the modification, differentiation, and enrichment strategies also had an effect on students in treatment classrooms. Students were more motivated and challenged when teachers provided more choices in student resources, learning activities, products, and assessment. "Students are being given more choices that are related to their interests and abilities. They are becoming more motivated" (Teacher # 70). Teachers who used differentiation as a strategy provided all students with learning activities, resources, and assessment that were meaningful to students of all ability levels. "Students enjoy school more because they are challenged and doing meaningful work" (Teacher # 55). Teachers observed students who were motivated and prepared to take responsibility for their own learning. "Students have been offered more choice and their ability levels have been addressed. With more choice comes more responsibility— instead of teachers telling students how to fill their time, students are making those decisions themselves" (Teacher # 212).

> Teachers are seeing how ability grouping causes all students to work to their abilities. They have noticed better work from identified G/T students, but also better work from average and low students. One teacher commented that students who usually do nothing were working! (Teacher # 214)

> If used correctly and consistently, these strategies help teachers to improve the curriculum and provide students with a more stimulating and engaging curriculum. The students took more ownership of their learning and were more excited about what they learned. Many of these strategies help teachers instruct students who are on various ability levels. Used properly, students can be challenged at their level rather than the ability level of the most needy.

> Those students who had their curriculum accelerated were much more motivated and enthusiastic during their math block. It was as if their effort and knowledge was finally recognized and they were no longer subject to the boredom of repeating material they understood. (Teacher # 201)

Liaisons observed that teachers felt they were in collaboration with students to help address their specific learning needs, rather than creating a curriculum developed to meet the needs of the most needy among students. "The strategies gave them options equaling more control and responsibility for their own learning" (Teacher # 206). "Curriculum differentiation benefited students in that they became invested in their learning experiences" (Teacher # 207). "Every student moved forward learned something different, became part of the learning process and shared ideas" (Teacher # 220).

One case in particular illustrated the profound effect the strategies had on both the student and his parents.

> K is a [resource] teacher and did a weather unit. One young guy in her group has multiple problems. He has an IEP and his parents frequently find fault with their son's education and often make unreasonable demands. The product this young

> fellow produced is included in the packet mailed recently. Although it does not appear to be exceptional work, for this young fellow it is! The parents brought to the IEP meeting their lawyer and were demanding a one-on-one aide for their son because of his needs. K produced this science product and all were amazed. The parents and the lawyer were amazed and no longer demanded the aide but admitted the district was doing good things for their son! This activity was developed by K as a direct result of the study—another plus that these strategies can be used in classes for kids with learning disabilities! (Teacher # 73)

Improving the Implementation of the Strategies

Liaisons made numerous suggestions to improve the successful implementation of the MDE strategies: fewer strategies spaced out over a longer period of time; more concrete examples; more feedback from the technical coach; modeling of lessons through video, etc.; and more district and administrative support.

> I like the actual lesson examples along with the theory. Perhaps a parallel development of each teacher's own unit throughout the training. I had them put initials of actual students next to the multiple intelligences types, etc. to make it all as concrete and relevant as possible. We *do* know these children! They *do* have different needs! (Teacher # 51)

Some liaisons felt that collegial coaching and the implementation of the strategies would be more successful if district administrators would recognize the value of the strategies and lessen the emphasis on state-mandated standards as a method for improving student achievement. "A building-wide emphasis would have been helpful! More support by administration: sit in on our meetings, STOP stressing over test scores."

District and Administrative Support

Liaisons proposed that collegial coaching was a successful professional development strategy if there is widespread administrative support via release time, pay for extra hours, collaborative planning times, etc. Several liaisons also suggested that a local, in-house workshop presenter would lend more legitimacy to the implementation.

Professional development that occurs during the school day, not after school or on weekends, seems to be best for teachers. It seems that professional development led by persons who have been successful using the practices has a greater impact on teachers. Also, the professional development must be in line with the philosophy of the school. There must also be follow-up time for discussion and further professional development for programs to be successful.

Teachers expressed frustration with one-time professional development workshops that lacked follow-up or practical guidance. Finally, both liaisons and teachers agreed that professional development workshops should occur during the regular school day, which demonstrates a commitment on the part of district officials for the successful implementation of the new strategies.

The "Big Red Notebook" as Professional Development

Prior to implementation of the strategies, the liaisons received a 4-inch red notebook binder containing materials to use in teacher training. The notebook contained a guided script, handouts, and overhead transparencies for use in teacher training. Liaisons had strong and diverse opinions regarding the "Big Red Notebook" as a source of professional development. A few liaisons indicated that the notebook was not a good method for delivering professional development. They suggested that it was so comprehensive that it was overwhelming for the teachers and the trainer. They also saw it as a poor substitute for a "live" workshop presentation, such as video or local professional development presentation. These liaisons concluded that sustaining the implementation after the study was completed would be difficult unless there was a concerted effort and support from district officials. "It just is not effective for most teachers. Only the most highly capable and motivated teachers can do this. The vast majority of teachers need lots of additional training, opportunities to share experiences, and to ask questions."

The majority of liaisons, however, saw the red notebook as a comprehensive source of information and resources.

> I love the big red notebook. I have trained MANY MORE teachers beyond our pilot group. It's absolutely wonderful! Superb job! Well done! It's the best "collection" of differentiation strategies I've ever seen. As a training tool, its greatest strength is also its weakness. I think it attempts to cover too much, too fast. My suggestion would be to concentrate on fewer strategies and cover in more depth. Also, I think there needs to be a follow-up training session. This follow-up needs to be mandatory. The slides do a good job of outlining and explaining the strategies and showing how they relate. But this is rather like explaining chemistry but not doing any experiments. Teachers need to "see it" to know how it should look. I think video is the best way to do this, reinforced with many samples and examples.

Summary

Liaisons involved with the NRC/GT's study of professional development practices added much to the richness of data collected through self-report questionnaires and teacher portfolios. They were intimately involved in every aspect of the study, from initial professional development training to final self-report questionnaires and logs. They coached, observed, assisted, and sometimes cajoled teachers as they implemented their chosen strategies. They suggested improvements and offered specific suggestions for professional development practices in the future. A research study of this magnitude would not be possible without the dedication and assistance of such professionals.

CHAPTER 11: Looking Into the Classrooms

Susan T. Dinnocenti

> *I have frequently used some of these strategies but now I feel there is greater clarity in my thinking and purposefulness to my plans. I also think I was able to modify for a greater number of students who are not just the one or two that are extra bright or extra needy.*

Throughout the NRC/GT study, many forms of data were captured: self-report teacher questionnaires, videos, pictures, interview comments, and liaison feedback. Much of these data were reviewed with videotapes, tape players, researchers' eyes, and quantified by statistical programs. This chapter focuses on the comments and materials from teachers who implemented the strategies over the course of the study. In the next few pages, snapshots of three teachers will include descriptions of the strategies they chose and a few examples of how they implemented them. Comments from their liaisons will also be provided.

Strategy Chosen: Tiered Activities

Altering the depth of a lesson based on the developmental differences of learners

Marlene is a middle aged first grade teacher who would light up a room with her constant energy and warm smile. A teacher, who, entered into this study to support her friend, the liaison, indicated that change is possible at any age and during any stage in the teaching profession.

Marlene
- 16 years of teaching
- Grade Level 1
- Boys – 9 Girls – 12 Including 3 Special Needs
- Self-contained class
- Believes at least 5 ability levels exist in classroom
- Liaison – very supportive

The Beginning

Marlene responded to the Classroom Practices Questionnaire (sample in Appendix G) by rating herself highly on items pertaining to enhancing strategies for high ability learners. She rated herself as a "5" (does more than once a day) on items relating to: the teaching of thinking skills, using more advanced curriculum, encouraging students to make use of classroom space, and substituting work for the advanced students who have already mastered regular classroom work. Items that Marlene rated as a "3" (doing a few times a week) on assigning book reports, assigning expository writing assignments selected by teacher, using learning centers to reinforce skills. Items rated with a "1" (once a month, or less frequently) were use of worksheets, opportunities for self-paced learning, and assigning reports to average students.

Based on Marlene's self-reported ratings, she provided learning opportunities related to thinking, writing, and advanced work for her most capable students. Her open-ended responses gave more insight as to how she approached the tiered instruction strategy.

> How I got started: I asked the children to write about this topic: What do I know about shelters? and What do I want to know?. . . . There was very little information given on these papers. There were several categories, however, (a) those who knew a

> little something, (b) those who had misinformation, (c) those who wrote about their own home, (d) those who wondered about dwellings in general. Everyone viewed a filmstrip about a family building a home. We toured the school to find the foundation outside and in.

Marlene determined a way to assess what each child knew about a shelter and then organized instruction around the base knowledge of her class. Marlene's 4 categories listed above resulted in some challenges as she explains further.

> Managing the time to work with all students when many are doing different things is always a problem. Breaking away from the whole group lesson. I often give separate tasks to children but usually that follows a whole group, teacher directed information lesson.

Progressing

Preassessment techniques used in tiering enable a teacher to arrange appropriate and challenging instruction for groups of students based on their readiness level. These strategies require the teacher to experiment with classroom management and develop endless patience in allowing change to take shape in its own peculiar way.

As the process continued, Marlene was asked to share her opinions on how tiering affected the students in her classroom.

> **Success**—The use of pretest[s] has become a vital part of my classroom instruction. I feel I have opened new doors to learning opportunities and make better use of students' work time.
>
> **Challenge**—Time management. Because this is first grade, all of the children look for assistance and guidance at the same time. They have a desire and interest to work on individual projects, but they are often "stuck" and need assistance.
>
> **Benefits to students**—Broader knowledge on a topic. Sustained interest. Success at all levels. Opportunities to use personal strengths. Opportunities to explore areas of interest.
>
> **Opinions**—I have frequently used some of these strategies but now I feel there is greater clarity in my thinking and purposefulness to my plans. I also think I was able to modify for a greater number of students who are not just the one or two that are extra bright or extra needy.
>
> **More effective if**—Anticipate and plan more effectively for those students who need review of basic concepts while making good use of the time of students who have mastered them.
>
> **Next year I want to**—Make use of some volunteers or other available personnel to fully develop the opportunities and ideas the children favor.

Liaisons' Comments

A difficulty with self-reported information is that the reader does not have the ability to validate the accounts that were written. This study, however, presented the opportunity for liaisons to comment on what they observed in the classroom as well as their personal insights on the implementation of the strategies by the classroom teachers.

> **Liaison's comments about the strategy**—Marlene pretested her class on the Shelter Unit with journal entries and found that the students she had perceived to be advanced did indeed have more sophisticated concepts and more accurate information. She then assigned different tasks for different levels: one level simply went home and counted rooms, doors, windows, etc.; another level went home and drew floor plans of their room, and the top students were assigned to try drawing their rooms to scale. In addition, the top students took the raw data from the counting and made bar graphs about the total class' shelter. The students write to her describing what project they would like to share to show what they have learned. She calls this step and pretesting "listening" to them.
>
> **Liaison on teacher change**—I can hear you asking, "But how much of this is a change for her?" This was a very good teacher who had always made an effort to channel bright kids into different, challenging activities. I would say the difference is that she's doing this "listening" to all the kids in a new way, that she's differentiating on a unit by unit basis including interest as well as ability, and that she's giving more conscious thought to the choices for the really bright kids. I also think she used to give them separate projects for "enrichment when they finished early" instead of more challenging work within the regular unit to allow them to go beyond the basic concepts.

The liaison's insights, provide anecdotal information about Marlene's professional growth and the benefits to the students' learning within the classroom.

Wrap-up

After 3 portfolio submissions to the NRC/GT, Marlene sent the final questionnaire with closing thoughts on the use of these strategies:

> **Success**—The *children challenge themselves and take responsibility for learning* when they are working in their zone of proximal development. I am very happy for them when they are meaningfully engaged in new learning, or firming up skills. I have a heterogeneously grouped class, but have come to expect serious work and progress from all. They have *come up* to *high expectations* and see themselves as capable as anyone to excel.
>
> **Challenge**—Time management: Often children really wanted to work through an activity, assignment, writing piece, book, etc., but our day is so fragmented that they have to stop.
>
> **Benefits to students**—Greater freedom to grow and learn. More rapid advancement.
>
> **Opinions**—I made a very good beginning to conduct a classroom that has children engaged in meaningful learning. I have begun to break out of the thinking that has dominated for years. I am giving myself permission to make decisions about my children's learning needs based on what I really observe.

> **More effective if**—Have staff membeis to brainstorm ideas with, had lots more time to plan, didn't have a student teacher working on entry level approaches. Next year I am building in *lots* of time to practice skills at an individual level.

Marlene's comments reflect a vision of a room filled with first graders who are enthusiastic learners. Although willing to change, she is realistic about daily challenges that effect teachers: time management, having a student teacher, and little time for planning or professional collaboration. Marlene represents the veteran who is still committed to learning with and from her students. She concludes her thoughts by explaining the impact that the strategy has had on her students.

> **Impact:** My students are very articulate about *learning*. They know that they learn from each other; that learning is life long; that they should be productive, not waste precious learning time. One child said, "First it's hard, then easy, then *fun*!" They *expect* personal and academic growth. I have learned how much children appreciate the *time* to explore new learning independently. They feel recognized for their talents. Choice and control and a sense of self-efficacy are essential for motivation. This modification promotes greater motivation to learn.

Strategy Chosen: Modification

The analysis, evaluation, and improvement of existing curriculum units and lessons plans

Diana
- 32 years of teaching
- Grade Level K
- Boys – 13 Girls – 7
- All students are behind in language development
- 6 students below grade level
- Liaison responsible for 98 schools

Diana has taught kindergarten for 35 years. Her portfolios sent to the NRC/GT consisted of 8 1/2" x 11" manila folders organized by a monthly theme. They contained folded flip chart paper torn from the classroom easel and newsprint cut and stapled into books filled with student illustrations of what lizards look like.

Diana presented herself as a routine-oriented teacher. She sent home a weekly *Kindergarten Newspaper* on Monday that displayed each day's activities. Sample clippings from a paper were: "We go to Story Bowl." We sing "It's Great to be a Dinosaur." We cut and paste a Dinosaur Dd phonics paper." Sentences like these were listed each week for the students to take home, and Diana's materials reflected many of these events when using her chosen strategy.

The Beginning

Diana had previously taught her students about animal families and their unique attributes. Her method of instruction was largely based on having students read information from books and discussing mammals, reptiles, birds, and amphibians.

To modify her lesson, she changed the lesson on birds into a "Feather Fun Workshop." To initiate this change she worked with the other kindergarten teachers in her school to develop a varied way of introducing and reinforcing the basic skills and knowledge that she wanted the children to gain from their bird investigation.

> First, I introduced the unit of study of the bird family with a trip to the Center of Science and Industry (COSI), and then a special workshop was arranged. The workshop was "Which came first?", a hands-on adventure with incubating eggs and

hatched chicks. We then followed it up with a "Feather Fun Workshop." The half-day workshop was set up in the gym so that students from the three classrooms had enough room to move around in their exploration.

This workshop will: (a) challenge students, (b) increase authenticity, (c) involve active learning in every academic area.

Diana changed her former process of introduction and discussion to a hands-on and minds-on investigation as children immersed themselves in the exploration of chicken eggs, incubators, and feathers. As shown in Figure 11.1, students rotated around 6 stations located in the gymnasium to practice curriculum oriented skills that would extend their knowledge of how birds live and acquire higher level skills. Stations and skills are illustrated in Table 11.1.

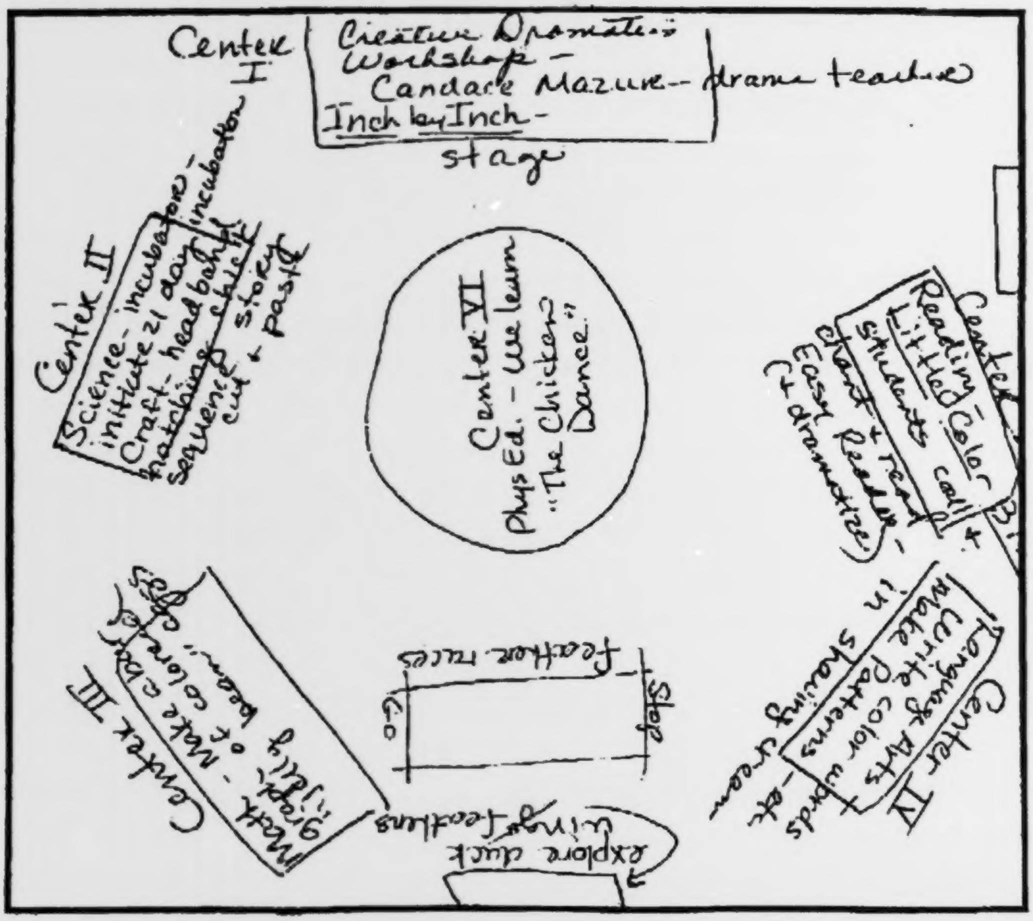
Center I
Creative Dramatics Workshop –
Candace Mazure – drama teacher
Inch by Inch –
stage
Center II
Science – incubators – incubation
initiate 21 day incubation
Craft – head band – chick
hatching sequence story
cut + paste
Center VI
Phys Ed. – We learn
"The Chicken Dance."
Center V
Reading – Color
Little Red
students color + read
chart + Easy Reader –
(+ dramatize)
Center IV
Language Arts
Write color words
Make Patterns – etc
in showing green
Center III
Math – Make a bar
graph of colored
"jelly beans"
Feather races
Go
Stop
explore duck wing feathers

Figure 11.1. Gym setup for the Feather Fun Workshop.

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Table 11.1

Descriptions of Diane's Stations for the Bird Unit

Station	Supporting the Content
• Using *Inch by Inch* by Leo Lionni (1995, published by Scott Foresman) students learned a portion of the story for the day's culminating experience. Students and teachers charted the story.	Literature and creative dramatics
• Incubator—discuss books and the process of incubation, then cut and paste sentences about baby chicks into a story. Label the parts of an egg containing a baby chick.	Science sequencing
• Feather Races—children work with 3rd grade partners to chart how many jelly eggs were in a plastic egg. Bar graphs displaying the more than and less than concepts were used.	Math
• Writing in Shaving Cream—students use different colored shaving cream to spell words related to birds for a tactile feel of sounds and letters.	Art—Reading—Writing
• *Little Color Birds*—using the big book, sequencing and retelling of story is done by taping students and then chanting the reply.	Reading—Sequencing
• Chicken Dance—talk through the dance pattern, actions with words, steps and words together.	Dance patterning
Culminating Activity Whole Group dramatization of *Inch by Inch.*	Drama, organizational skills

The stations allowed children to use their physical, creative, and curious expression, while learning about the life cycle of a chicken. This was a big change for this particular teacher, who originally used lecture and books to discuss this topic. Her comments associated with this project included:

> **Success**—Students were motivated throughout the workshop – and "0" discipline problems. All were challenged and enjoyed success.
>
> **Challenge**—Time, (the eternal enemy) a lot of planning time was involved but the rewards made all worthwhile.
>
> **Benefits**—High enthusiasm, the high degree of activity level, meaningful, fun products produced, multi-academic process was used.

> **Change next year**—Using the workshop technique not only on a special one time event, but in my classroom as well.
>
> **Been more effective if**—Applied my "Feather Fun" workshop concept to each of the animal families studied.

Progressing

As the year continued, Diane sent additional monthly folders based on a theme containing students' artwork, phonics sorting activities, and collaborative ventures that resulted in making a giant dinosaur like the one referred to in *Katy and the Big Snow* (Virginia Lee Burton, 1974, published by Houghton Mifflin).

As the study began, Diana's classroom management technique was to make sure that her theme-based activities were organized into centers around the room and to have each child rotate to the center and check participation in the activity. In short, her room was doing whole class instruction, but within small group settings.

Liaison's Comments

With the support and understanding of her liaison and working through her modification strategy of "Feather Fun," Diana became more aware of the individual strengths of her students, and she began to extend learning opportunities to children who were ready to go deeper. Evidence of Diana's growth is explained by her liaison:

> I have had the opportunity to support Diana's instruction with materials and resources from my office. She was particularly excited with some logic activities, which were geared to K-1 and became more complex.
>
> Diana demonstrated her understanding of the curriculum differentiation strategies each day/week as she prepared her center activities. After the training and practice, she began including activities, which were more challenging for some of her students. The activities were either independent in nature or an extension of an existing center.

Wrap-up

Diana began to add more high-level opportunities to her center activities due to the observed behaviors that she began to see in some of her students when challenges were presented to them. Becoming more aware of what a few changes to a curriculum unit could produce, Diana offered the following comments in her last portfolio.

> **Opinions**—These are all useful strategies to use to meet the needs of all your students. They can be incorporated in a self-contained classroom successfully. Given the "challenge" to use one or more of them has "pushed" me into a greater sensitivity to my gifted students and I have offered them greater challenges and freedoms than I have in the past.
>
> **More effective if**—Observe other teachers using these strategies.
>
> **Benefits to students**—Planned success, high interest level, pride in accomplishments, development of organizational skills, participation in cooperative learning, time management, opportunity to make self selected free time choices.

> **Impact**—The impact of such planning for the teacher is a highly motivated work time for students accomplishing academic goals and allowing time for small group work and/or independent skill building with me.

Diana's liaison visited the classroom before sending in her final thoughts and commented on what she saw occurring in the kindergarten classroom.

> In Diana's classroom I saw several students self-select more challenging activities when they were offered on the daily work charts or centers. The students were eager to share what they did and willing to do more if asked. On one occasion, two students were using a variety of block shapes and sizes to design a simple machine. After sharing and demonstrating these simple machine constructions, I asked the children to save their design graphically. They became completely engrossed in drawing very detailed pictures of their simple machines, including labels.

This liaison also commented on her role as a liaison:

> I have had many opportunities to present in-services and workshops on gifted strategies. I am even visiting selected schools on a regular rotation. Yet, I have not felt that I have had nearly the impact in these situations that I have had in working with my research group. Having the well-organized support materials, which you provided, certainly helped, but I think the relationship we developed as professionals over time made the biggest difference.

Both Diana and her liaison demonstrated professional growth through peer collaboration. Diana demonstrated and commented on her awareness of how more student challenge is necessary for a classroom to become more student centered.

Strategy Chosen: Alternative Activities

Increasing the breadth of a lesson by providing varying goals, choices, of resources, and product options

Elaine is a middle school foreign language teacher who teaches 8th grade Spanish and French. Her district is located in a small rural area where class size is small and space is limited; itinerant teachers travel from room to room for instruction.

Like many teacher responses reviewed in this study, Elaine acknowledged that she, too, used whole class instruction the majority of the time and did very little differentiating for various students at levels.

Elaine

- 18 years of teaching
- Grade Level 8
- Departmentalized Instruction
- Special Needs students include: hearing impairments, emotional/behavioral disorders, and learning disabilities.
- Liaison has G/T training and very supportive

The Beginning

Elaine began using her strategy by taking a familiar lesson in learning Spanish vocabulary for farm and zoo animals and assigned students varying products based on their ability level. The more capable students were assigned a more complex description of animals, those less capable had a simpler task of drawing one animal; others could simply cut and paste and use more time for the written section. This beginning exercise, reviewing

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vocabulary, enabled Elaine to reflect on the possibilities that can exist when curriculum is aligned with learners' ability levels.

> **Success**—All students were engaged in the task. All finished at the same time. Usually the better students are finished long before the rest of the class.
>
> **Challenge**—Keeping all the students on their assigned task, I would also change the grading sheet I used, three different sheets rather than one for the entire class.
>
> **Comments**—I've learned that enrichment activities can be very simple ones. I've become aware of the possibilities for differentiation with the other classes that I teach (French).

By alternating assignments based on ability level, Elaine realized that her assessments would now have to be changed. The initial awareness of how her instruction could be strengthened by using a differentiation strategy was reflected in her next portfolio.

It should be noted that although Elaine originally interpreted her strategy to be tiering, our reviewers categorize her selected strategy as alternative activities based on her portfolio contents. The lessons submitted could be successfully completed by any group within her class based on their prerequisite knowledge. However, in tiering assignments, the highest level assignment would not be possible for other groups to accomplish as it would be based on skills and concepts that have not been mastered.

Progressing

Elaine continued her process of using alternative activities by involving students in an imaginary trip to Mexico. Her goal was to strengthen her students' Spanish vocabulary into meaningful dialogue, but she needed to have an understanding of their language ability level. The group with the lowest language skills developed Spanish dialogs that focused on reserving a flight to Mexico and additional dialogues between a flight attendant and themselves on the day of the trip. The second group (having stronger language skills) planned where in Mexico they would be staying and justified their reasons for selecting the location. The third group (those with the strongest skills) was assigned a journal that described their daily activities while on vacation. Each group received a rubric with point values and a paragraph describing additional requirements (point values omitted).

> **Rubric for beginning language learners.**
> Remember that this will be a *conversation* between the flight attendant and you, a tourist. You will probably think of more interesting and appropriate questions to ask and answer. This is a *group project* and you must divide the task evenly, so that one or two people do not do most of the work.
>
> **Rubric for middle language learners.**
> The new words you have learned in Capítulo 12 to find a destination in Mexico will provide the vocabulary you will need to be successful in this project. You may look up additional vocabulary in the dictionary, but be careful it's the correct meaning! Each person must hand in a typed or neatly written copy of his/her script.
>
> **Rubric for highest language learners.**
> The journal entry must have illustrations for at least two activities. You must use the past tense and include the names of one or more of your classmates in your entries.

> There should be one entry for each day you spent in Mexico (5). Use the *nosotros* and *yo* forms of the verbs in addition to names.

In her second portfolio, Elaine wrote the following:

> **Success**—Engaging and challenging for the most able students in the class. Seeing each group attain a measure of success. Having students use the Internet for exchange rates, hotels available, flight information and cultural attractions.
>
> **Challenge**—Keeping all students on task while working with individual groups. Finding time to prepare. Having students divide the work for their group fairly. Allowing for absences of students who were working in pairs.
>
> **Change**—Incorporating these strategies into daily activities involving the text they use, rather than projects as I did this year. I would like to create short worksheets for the different activities.
>
> **More effective**—Have enough planning time and fewer daily preparations (2 levels of French, 2 levels of Spanish)
>
> **Benefits for students**—Higher interest level in subject matter. They enjoyed activities that were "customized" to their abilities.

Most of her comments describe students as being challenged at a level commensurate with their ability. One particular comment, however, listed in the third area of the portfolio, reflects that Elaine would try to create worksheets for activities instead of projects—this statement was not expanded on and may indicate a step backwards from her initial efforts of alternating assignments.

In Elaine's third portfolio, additional documents were sent that showed activities for her Spanish class where students could choose the product they wanted (alternative activities) based on creating a weekly newspaper (see Figure 11.2).

Alternative activities were an extension from Elaine's previous textbook lessons and her students responded by being engaged. As explained by Elaine:

> **Success**—When presented with a task that interested them, the students were busy and productive. I think they were comfortable working with others on their own level—some too comfortable!
>
> Group activities are much more enjoyable for the students, but harder for teacher's classroom management.
>
> I learned a lot by watching how they interact—the leaders emerge and the creative ones always surprise me.
>
> **Challenge**—Keeping all students on task and creating tasks with the same interest level for each activity. When all are working, there are always some that try to get by on someone else's work.

El Periódico Amarillo

Our Spanish class is going to "publish" (on the bulletin board) the *La Vida* section of a weekly newspaper.

In many cities, this section of a the newspaper focuses on:

* beaches to visit (Caribbean, Spanish)	**5 points**
* interviews with t.v. and film celebrities (Academy award winners) that include pictures	**10 points**
* the t.v. section (including Spanish language t.v.). Prime time listings, with kinds of shows	**5 points**
* movie ads (with graphics) which give a review of the film	**10 points**
* comics (with dialog)	**5 points**
* puzzles (CD-ROM generated or original)	**5 points**

You will have your choice of which feature you will do . . . en español, ¡por supuesto! Each feature will have a point value, and everyone must select his/her features to have a total of ten (10) points. The vocabulary you use must contain vocabulary words you have learned in Chapter 9, and, of course, those you have learned earlier. Please check with Señora White before you look up new words to make sure that they are appropriate.

You will be graded on how well you use vocabulary, how well your choice(s) fit into the newspaper theme and your productivity during class time allotted.

Figure 11.2. Sample rubric for class newspaper.

> **Opinions**—I feel that it can be done, but not in all classes, all the time. A teacher who teaches five classes a day, in two different languages, with students of differing abilities would need half a day to prepare for each.
>
> **Benefits**—More time for repetition on the basic level, thus higher success rate. Upper level students had an opportunity to acquire additional vocabulary in Spanish.
>
> **Impact**—For me it changes the way I approach teaching a lesson. I've tried to look at a class as three distinct groups rather than one whole group. For my students, I think there was less frustration on the basic level and more purposeful activity on the upper level. Students knew exactly what was expected of them through the rubrics assigned to them.

Overtime, Elaine's responses regarding her classroom practices indicated changes. Instead of "never" using differentiation strategies or encouraging the students to move around the classroom, Elaine now used them daily or a few times a week. While there is definitely more room to grow, each step that Elaine has taken provided students with opportunities that "never" existed before in her instruction.

Liaisons' Comments

The growth that Elaine experienced was reinforced by her liaison's comments:

> Elaine was not steered into this treatment group. She chose to participate and thought really hard throughout the training about how it could apply to her area. I was surprised when she chose tiering [alternative activities], but she has been so pleased about how well its worked for her.
>
> She has been pretesting with every new unit in Spanish, which is allowing her to proceed more quickly, and tiering [alternative activities] in every other unit to increase motivation and success. Her ultimate goal is to develop engaging tiered assignments for every unit. Her method has been to create tasks, which were "doing" or "performing," and where each level's task appeared enjoyable.

Summary

The snapshots of these three teachers provide a glimpse of the growth that can occur when differentiation strategies are integrated into instruction in a regular classroom and are guided by a liaison in a mentor/coaching role. Almost all teachers commented on the frustrations of daily school schedules, testing pressures, and a lack of collaboration time to participate in the study, yet these difficulties did not prevent the majority of them from implementing changes in their classrooms. The changes in teacher behaviors varied, not because of the support of their liaison necessarily, but by the teachers' commitment and determination to persevere in implementing pretests and reorganizing their instruction based on the talents and interests of their students.

CHAPTER 12: Qualitative Analyses of Three Sites

Linda J. Emerick

> *[The liaison] has been really good at helping me keep to task, finding me something that I might have found it harder to get on my own, helping me brainstorm ideas and things like that.*

Introduction

Three treatment sites were chosen to examine the extent to which gifted education pedagogy was used in classrooms. The purpose of the qualitative analysis of three sites was to gather additional data to explain "the story behind" the surveys, logbooks, and sample materials that teachers and liaisons had submitted for review and analysis. Classroom observations, interviews with liaisons, and interviews with classroom teachers were conducted.

Data Collection

Interviews

Interviews were conducted at seven schools among the three sites. The interview guide approach was used, allowing for discussion to shift freely between the interviewer and interviewee. Interviews were approximately 30 minutes to 2 hours in duration. A description of participants is listed below:

Site One:	One liaison, two participating teachers, one non-participating teacher
Site Two:	One liaison, three participating teachers
Site Three:	One liaison, nine participating teachers

Classroom Observations

Participant and non-participant observations of classroom activities were conducted. In most instances, the teacher selected a lesson that he or she wished the researcher to observe. In a couple of instances, the teachers chose the lesson in hopes of receiving feedback on their instruction. The researcher usually remained in the back of the class as a non-participant, but was sometimes asked to serve as audience or active participant in classes. There were limited opportunities to discuss the activities observed with the classroom students. Classroom observations were 20 minutes to 1 hour in duration.

Site One:	No observations
Site Two:	Two observations (grade 5, math and language arts)
Site Three:	Seven observations (grades K, 1, 4, 5, 6, 7, 8)

Data Analysis

Data from interviews and observations were analyzed to identify common themes (findings) both by individual site and across all three sites. In addition, the researcher arrived at conclusions for each site and across sites based on the findings and her own perspectives. Please note that findings and conclusions are not limited to the specific objectives of the study (effective delivery of training). They also include information on the nature of change in instructional approaches as perceived by teachers, strengths and shortcomings of data collection in the study, and the impact of project participation on individual teachers.

Individual Sites: Findings and Conclusions

Site One—General Description

The liaison who participated in the study received a training packet of materials from the University of Connecticut, but did not participate in the training institute. He received assistance from a former gifted education coordinator when he presented the training materials to teachers in the first year of the project.

In the initial year of the project, several teachers had participated in the training and subsequent meetings the group held. However, by Year Two, the majority of the teachers had left the profession or moved on to other teaching positions. There were only two teachers participating in the project in Year Two and one special education person who informally receives information from the teachers. The special education person is not a formal participant in the project.

Common Themes/Findings for Site One

1. Liaison was not confident of his ability to meet the project needs of the teachers.

   As the study progressed, the teachers involved increased their demands for "more information (on differentiating curriculum), more details, more examples . . ." and evaluations of the curriculum they had designed. The liaison was adamant in his assertion that "I was not really able to help them much more than I did because I'm really not an expert on this, either." The liaison believed he did not have additional resources to share, having only "materials from my own grade level and my own program."

   Even though the teachers found group meetings to discuss curriculum very helpful, the liaison chose not to continue the meetings until 8 months after the previous group session. The meeting appeared to be unstructured and frustrating to the two teachers who attended. However, the liaison described it as "very interesting . . . productive discussions." He did state that he would structure the meeting differently if he had to hold another one.

2. The teachers who received the training currently operate exclusive of the liaison in differentiating curriculum.

   It was interesting to see the discrepancy between what the teachers were doing in the classroom in Year Two and what the liaison thought they were doing. Both teachers, although of differing skill and experience level, had continued to attempt modifying the curriculum for advanced students. One was far more adept at creating and implementing appropriate modifications than the other ("That's just my own style of learning."), but both believed that they "have done more this year" than in Year One.

By contrast, the liaison first stated that the teachers were modifying curriculum in Year Two based on the training they had received. However, as the interview progressed, he revised his statement saying, "I'm not really convinced that anyone who was there (for the most recent meeting) is still working on the modifications." In fact, he had not submitted the logs and curriculum samples the teachers had given him to the University of Connecticut, as he was required to do.

3. The participating teachers wanted to move forward in training and wanted more feedback on their work.

   Both teachers expressed a strong desire to have more training and to see more examples of modifications on which to base their own work. The need for critical evaluation and feedback on both their lesson ideas and instructional methods was a top priority. The teacher who had made minor modifications in her curriculum stated, "One of the main things is . . . maybe more feedback. Like, I did a lesson, so now come in and talk to me about my lesson. How could I have made it better? What are some strengths, maybe some weaknesses of it?" Although she was not confident of her ability to modify curriculum, she wanted guidance so she could do more.

4. The participating teachers did not report their activities accurately.

   If the evaluator had tried to pre-determine which of the two teachers was more knowledgeable about differentiating curriculum based on the teacher surveys, the conclusion would have been wrong. The teacher who made the most effective use of the training had responded to the surveys with one and two word responses that did not fully describe the scope and complexity of his lessons for children. In contrast, the teacher who had made "minor changes" in her curriculum, sometimes inaccurately, had embellished her responses, admitting she had not done curriculum compacting and other modifications she had listed on the survey until recently. On the survey, she had stated that she had used various strategies frequently and for long periods of time.

5. Teachers were motivated and wished to continue learning how to meet the needs of advanced students.

   Both teachers were eager to continue with the project, if they could receive even minimal support. While admitting "it's exhausting . . . too much," the two stated emphatically that "the real difference . . . is looking at student work and seeing what students are getting out of it." One stated, "I'm really trying to work with different things. I've used things that I've developed . . . so I'm using those ideas and I'm broadening it, too. . . ." It appeared that the reaction of students to the activities was the prime motivation for a desire to continue with the project.

Conclusions

The training for teachers at this site was successful in spite of several obvious limitations in knowledge and implementation. The deficiencies included a lack of structure and follow-up by the liaison, failure to accurately determine the initial level of expertise of the teachers (resulting in some projects looking worse than they were and survey results being inaccurate), and the vastly different teaching abilities of the two teachers. However, in summary, both teachers had changed their instruction and curriculum to some degree to accommodate advanced learners, both were excited about what they had learned, both were very positive about gifted students in general, and both wished to continue expanding their expertise. These findings would indicate that the training, even at a minimal level, had a positive effect in the regular classroom.

Site Two—General Description

Site Two participants included the liaison and three teachers. A fourth teacher had also participated in the project, but the researcher was discouraged from interviewing her for a variety of reasons (i.e., illness, attitude toward project). Another teacher who had participated in the project was not available the days of the interviews and observations.

The liaison for the site was a highly experienced, well-trained coordinator of gifted education who had a long history of interaction with the research institution and its personnel. She participated in the University of Connecticut training prior to offering training to her teachers. The data revealed that she had hand-picked the participants for the project, selecting those who were "all seasoned teachers . . . who have been in this system . . . 27, 28 years. I didn't take a first year, a newly tenured, or a 10-year teacher. I chose . . . people who are well entrenched in strategies. But the five whom I have are really good, good teachers." The teachers were also personal friends of the liaison, as was reiterated by each in the study.

This site should be designated as the "one that could not fail." The liaison seemed to feel a personal commitment to the research institution to ensure that each teacher successfully modified curriculum. In addition to the specified training for the project, the liaison added training in Howard Gardner's Multiple Intelligences. Evidence of this training was prevalent throughout the interviews with the teachers. While they might not remember all the terminology of the project training, the Multiple Intelligences language certainly made an impression and helped the teachers connect theory to practice in the classroom.

Common Themes/Findings for Site Two

1. There was lots of support and additional materials for teachers from the liaison.

   The teachers interviewed believed that the liaison "opened up such avenues. Through her resources . . . really got me going. Here was the end of it (a differentiated lesson) and I was ready to go onto something else, but she'd say to me, 'Well, where are you going with that from here?' And after that it was non-stop. . . ." There was nothing but praise for the efforts the liaison went to in order to explain strategies that were unclear from the training, to provide additional examples and resources, and to offer feedback and encouragement. All of the teachers believed these actions were critical to their own willingness and ability to modify the curriculum. In reality, the liaison provided additional workshops on the strategies for more in-depth understanding. As one teacher said, "[The liaison] is always there. Just give her a call and she'll come and help you out."

2. There was great respect for the motives and abilities of the liaison.

   All teachers interviewed thought the liaison was their friend and that she had the best interests of children and teachers at heart. As one stated, "She is very excited about what she does and she feels well about it and she's very knowledgeable about it all. And that's the thing, maybe, to be sure that the trainer/liaison is knowledgeable and isn't just training because it's something they have to do."

3. The teachers were proud and excited about their progress.

   The teachers believed that in spite of their years of experience, they had all gained something from participating in the project. One of the teachers stated, "It's given me more incentive. Given me incentive and to know that I can still be free. I can still be free in my teaching . . . my personality can come out. . . . I have to say this is all absolutely wonderful." Another teacher believed, "I'm not so limited. I'm able to incorporate a lot of skills into one activity that before I would limit to maybe just one skill. I don't know . . . it's more creative for me."

4. The teachers are actively involved in continuing curricular modifications in their classrooms.

   All three teachers were continuing to use strategies they had learned the previous year. However, it appeared that few new skills had been added or expanded upon. Instead, the teachers shared lessons they were doing this year that were repeats of last year's activities. They all seemed to feel comfortable with this slower pacing of modifications, almost as if they were becoming comfortable with the new strategies before moving on.

5. The teachers believed there were a number of shortcomings in implementing the modifications.

   While all were enthusiastic about the project, the teachers voiced several areas of concern. These included lack of time for preparation, decreasing personal level of patience, and not understanding and matching the terminology to the strategy used. The latter concern was deemed as the "most difficult part, is understanding the terminology." According to one teacher, "I have a difficult time sometimes understanding the terms that go with the type of program [the liaison] runs. So I'm always, 'What does this mean?' And she'll say, well, say for example, tiered learning. So to me she'll have to come and sit down one-on-one, and she'll tell me how to do that, work it into the program."

Conclusions

This may not have been a typical site, at least as compared to Site One. In spite of directions otherwise, the liaison handpicked the participants for the project. However, she chose teachers who were so experienced that they may have had greater challenges in evaluating themselves and changing the way they had taught in the past. Another unique feature of this site was the involvement of the liaison in coaching and mentoring the participating teachers. She was frequently in their classrooms, helping to debrief activities with the students; offering ideas and new materials that she thought the teachers might incorporate; and anticipating their concerns and requirements. This level of attention was greatly appreciated by the teachers interviewed.

The teachers appeared to be eager to move on to new strategies. They had received a lot of praise from the liaison about their progress and all were able to cite examples of the effects the project had had on their teaching (from ability to identify hidden abilities to improving their rapport with their students). However, none mentioned new directions in teaching for a future time.

Site Three—General Description

When compared to the other two sites, Site Three might be designated as the "perfect site" for the project. The liaison had a wealth of experience in and knowledge of gifted education, had participated in the training program prior to offering the inservice session, had followed the participant selection and data collection processes exactly, and had maintained contact with the teachers over the entire period of the project. The only shortcoming was the number of teachers participating. Due to a misunderstanding at the start of the project, there were too many participants (a total of 12) and none had withdrawn from the project at the time of this study. The 12 teachers ranged in experience from 3 to 4 years to 20+ years in the classroom.

It is important to state there was a single teacher in the group interviewed and observed whose responses were variants of all other participants' responses. The themes and findings listed below can be applied to *all* participants at this site, save one. Please note it is not unusual to have a variant theme or finding, but in this case, there was a whole variant person! The individual stated that he "had not learned anything from the project I didn't know before." He also stated that he had found no use for the strategies in his classroom, since he already "taught that way." However, after repeated rephrasing of the question, he never articulated how he taught or was able to provide examples of classroom applications of his knowledge to modify curriculum. The teacher's opinions are not included below.

Common Themes/Findings for Site Three

1. The liaison was conscientious about following the protocol for the study.

   The liaison and the teachers at Site Three confirmed the rigor with which the liaison carried out the steps of the project. Selection of participants, amount of prescribed training, and collection and reporting of outcomes were strictly adhered to. The exactness and concern of the liaison also applied to other aspects of the project, as seen in the following findings.

2. Additional support and materials were provided by the liaison.

   There was nothing but praise for the liaison and the work she had done with the teachers. According to one, "It's a difficult kind of thing [being in the project] because it's new ways of doing things, which obviously means it takes more time. But [the liaison] has been really good at helping me keep to task, finding me something that I might have found it harder to get on my own, helping me brainstorm ideas and things like that." For another teacher, it was the liaison's feedback that was important: "When [she] did the training with us, we got a lot out of it; but it was kind of 'O.K., here's what you should be doing.' I'm the type of person where I need an example." The liaison was able, when time was available, to offer the examples and materials needed.

   The personal relationship of the liaison to the teachers was an important part of their continued efforts. A third grade teacher said, "She's super, and she's been in my room a lot. And [she's] a very, very loving, warm, easy person to be with." Other teachers expressed this opinion as well.

One thing noted by all the teachers was that it was difficult for the liaison to offer assistance to all of them on a consistent basis. While she had excellent mentoring skills, they all realized there were simply too many of them in the study for her to do her own job and help them as much as they wanted.

3. The teachers were actively involved in continued modification of curriculum in Year Two.

   "Some people have changed a little and some people have made a sea of change." These words describe the levels of involvement among the participant teachers at this site. Many of the teachers actively sought out information to continue and expand the modifications they had made in curriculum. According to the liaison, ". . . the people who've changed the most have been the ones who have sought out the most chances to run ideas by me, to ask me to hand them articles."

   An experienced first grade teacher noted, "I've just been loving it [making modifications]. I've really shifted and all of my teaching is different. I've always taken pride in that I build community in the classroom and try to respect [the students], but now I have something to hold on to. The children are being so responsive, too." This teacher gave several examples of new modifications she was implementing in Year Two of the project. Without exception, all teachers interviewed at this site were able to give concrete examples of modifications they made immediately after training in Year One and additional strategies or refinements they had added in the second year.

4. There were too many participants for the project to be able to function at the level the teachers were capable of attaining.

   As noted earlier, the teachers were aware of how valuable coaching after training was to their successful modification of the curriculum. The liaison also expressed frustration over not being able to offer as much time and energy to individual teachers as they wished. "Both years, I was going to make a schedule where I'm going to see you every 2 weeks, right? But they [the teachers] didn't want to. They have so many meetings. I think they wanted to feel like [we could meet] on an as needed basis. That still bothers me. I still feel like I would have had a better handle each time I had to write up my reports if I had been seeing them regularly. I'll work with somebody a lot for awhile and then somebody else a lot for awhile."

   Data from observations led to the conclusion that the teachers were eager to move forward and wanted one-on-one coaching. However, the large number of teachers involved in the project made intense training and mentoring prohibitive. It was interesting to note that they were "prime candidates" for advanced and/or continued training, but the resources simply were not there.

5. The teachers were proud and excited about their progress.

   There was a strong element of pride in the teachers' descriptions of the modifications in curriculum they had made. This pride also seemed to be a primary motivator for their continued participation in the project. Comments such as the following were common:

> It's validated for me a lot of things that I used to do anyway as a teacher. I'd love to have a class again.
>
> [After the training] my philosophy is that I am not teaching lessons. I am teaching children. . . . I am seeing their joy of discovery, their interest, their motivation.
>
> I feel like it's important not only for the kids but for me to be continually pushing the envelope a little bit and trying new things. That's pretty much why I went into [the project] to start with and I would say that's pretty much what I feel I've gotten out of it.
>
> We're talking about the same content [of what is taught], but I'm approaching it in a different way.
>
> I will definitely do this once the project is over. Definitely, yes. As a matter of fact, in some ways, I wish there were additional things I could incorporate now. I said [to the liaison] that don't you think that a year and a half seem like a really short time for this. In my mind your talking about a change that takes longer than a year and a half.

6. Teachers wanted more feedback and more information about their modifications.

   As stated earlier, a recurring theme for the group was, "We're making lots of progress, and we want more—lots more." When asked what should come next in their development, almost all the teachers mentioned wanting more examples, one-on-one coaching, and some type of evaluation of their modified curriculum. For one teacher, "I'm kind of learning by trial and error about how much leeway I can give the kids and how much to rein in. I still need to make sure that I can manage what's going to happen in the classroom. I need to know about that." For another, "I would like more guidance now. The liaison does a lot, she really asks, 'Can I help? Can I help?' but just more training right now would help, I think. You know like half way through again [during the project]."

7. The teachers were motivated to continue modifications because of the reactions of their students.

   All teachers stated that they were delighted with the responses of their students to curriculum they had modified. One teacher thought, "It's a lot of preparation and a lot of work to use a lot of these strategies . . . but the children really like it. They get really excited about learning when we use these ideas." One teacher was surprised at what her students could do, stating, "Some kids wanted to do harder things . . . they're used to doing harder things now rather than keeping everyone at the same step." Another teacher declared: "The bar has been raised because they [the students] can raise their own bar."

Conclusions

This site probably represented the best that can happen in the regular classroom when there is support for teachers to differentiate curriculum. All the teachers, except one, were actively engaged in making curricular modifications. All were expanding on what they had implemented the year before. Most importantly, all were ready to progress further. The elements for the success of the training appeared to be the materials provided by the project, the resources available to the teachers, the quality of teachers who volunteered to participate, and the mentorship of the liaison.

Summary

The following is an informal listing of the thoughts and reactions of the researcher based on findings at the three sites:

1. Does liaison training make a significant difference in outcomes in the classroom?

   Those who attended the training for liaisons seemed to have been more effective in organizing training for the teachers and to have had better results overall in implementation of classroom practices. However, in this study, those liaisons who attended the training by University of Connecticut researchers were already more experienced in gifted education than the liaison who was given only the packet as a guide for instruction. It is impossible to say that attending the training was a factor because of the confounding factor of prior experience.

2. The expertise and involvement of the liaison was critical to the implementation of differentiation in the classroom. It appeared that in Year Two, the project at each site was left with those teachers who were sincerely interested in differentiating curriculum for advanced learners or who were devoted to the liaison who was guiding them. These individuals continued to be motivated by the coaching of the liaison, additional materials that were provided, or simply by seeing the effects of their instruction on the children. However, those who interacted with the more experienced and knowledgeable liaisons appeared to have made bigger gains in confidence and more consistent improvements in their teaching.

3. Baseline information on classroom practices is necessary to determine the degree of change that occurs after training. Many of the changes in instruction and curriculum development were initially under-rated in the study simply because there was not a clear picture of the type of instruction the teacher had engaged in earlier. For some teachers, implementing the modifications was simply a matter of renaming what they had been doing previously. The modifications and training were validation for their own mode of teaching. For others, small changes represented monumental steps forward. A primary teacher with over 25 years experience had never taught a science lesson because she felt inept in that area. The training encouraged her to teach her first hands-on science lesson with fear and excitement. The lesson itself did not appear unusually advanced or unique—except in the context of this teacher's previous experiences and her attitude toward her abilities.

4. Logs and products do not tell the whole story. As stated above, the materials presented as documentation for the project did not accurately reflect the level of change and improvement taking place with the teacher and in his or her classroom. For many teachers whose products did not look impressive,

there appeared to be an attitude change about the appropriateness of differentiation and an increase in enthusiasm that occurred before their instruction underwent major changes. There is a great need to get the "story behind the event" to understand the changes that are taking place and to whom or to what the teacher attributes those changes.

5. Teachers want and need one-on-one feedback to encourage continued change and progress in differentiation. The training, regardless how it was offered, was a huge success in that all the teachers interviewed (save one) were eager and sometimes desperate for feedback and more information. They were prime candidates for continued changes and improvements in their teaching, especially if they were fed more ideas and more examples that were applicable to them individually. Some of the teachers were natural curriculum developers and wanted feedback on both the curriculum they had designed and on their instruction in the classroom. Others were moving toward making small modifications in existing curriculum and needed more structure and examples to reassure themselves that they were on the right track and that it was permissible to make the changes.

6. Changes in the quality of instruction were often subtle. By regular measures, it would appear that the majority of classroom teachers in the project are not experts in differentiating curriculum—they call things by the wrong names, they take small steps instead of giant leaps, they reinterpret strategies to fit their own beliefs and needs, they make some changes but have huge gaps in understanding gifted children. However, they are changing, they are making progress and the biggest way to inhibit that progress is to be critical and disdainful of what they have accomplished to date. For example, a fifth grade teacher who was interviewed and observed had modified her curriculum so children had a choice of topics for research and a choice of delivery modes for the projects. When the children's skits and presentations were observed, the teacher was beside herself with panic that "it will not turn out very good" but glowing with pride that she was taking this risk for the first time in 20 years of teaching. The skits were outstanding, providing the teacher with positive reinforcement for giving students choices again in the future. At the same time, she voiced concern about gifted children, stating that they should be teaching others in the classroom and sharing their gifts. No, she had not progressed very far in understanding the educational needs of gifted children, but to let that negate the improvements she had made in her teaching would stop her growth as an educator and gain nothing for the children.

7. This project was a textbook example of Concerns-Based Adoption Model (CBAM) in action. Interviews and observations revealed the subtle indicators that teachers are assessing their own teaching, learning and implementing new strategies, changing previously held attitudes, and continuing to evaluate what they do. It will be helpful to future studies of this nature to assess the level of concern of classroom teachers prior to and following training. This will help provide baseline information that is needed to accurately assess the impact of training.

8. Data collection by conducting individual interviews may serve as part of the training for teachers. The teachers in the study appeared to enjoy having an opportunity to talk about their successes and failures with the project. Several commented that they appreciated non-judgmental interest in what

they were doing. This is not an unusual phenomenon, where the research becomes part of the "intervention." In designing future training programs, it may be beneficial to include open-ended interview sessions to promote interest and reflection on the part of those participating in training.

CHAPTER 13: Interviews of Liaisons and Teachers

E. Jean Gubbins

> *Teachers and students should attend their county and township institutes and not only attend them faithfully, but take part in them. Do not let some big guns do all the talking.*
> (The Teacher's and Student's Library: A Compendium of Knowledge Necessary to Teachers, Students, and the General Reader, 1895, p. 466)

Introduction

We invited all liaisons and participating teachers to join us at the National Association for Gifted Children Conference in Albuquerque, New Mexico in November 1999. We asked if they would participate on a panel to share their experiences with the implementation of the study of professional development practices. Twelve liaisons and teachers agreed to attend. NRC/GT researchers opened the session by reading the quotation above. We emphasized that we did not consider ourselves the "big guns." We appreciated the opportunity to participate in this study with liaisons and teachers all over the country. We presented an overview of the purpose of the study, sample, intervention, instrumentation, and some preliminary quantitative and qualitative results. More importantly, however, this conference presentation was an opportunity to pose questions about the whole process and listen to the reactions from first-hand participants. We wanted to

> . . . investigate not only what happens if you try to extend the pedagogy of gifted education to the regular classroom, but also, what happens when you attempt to upscale an innovation? . . . [H]ow do you take an innovation—what appears to be a promising practice—and spread it more than 50 miles from the place where it originated? (NAGC Convention Transcript, 1999, p. 7)

Liaisons' Responsibilities

We spent considerable time drafting, piloting, and redrafting the contents of the professional development training module: big red notebook, videotapes, and guidebooks. As the researchers and developers of these materials, we were comfortable with the format, pedagogy, instructional techniques, data collection techniques, and instruments. However, the liaisons did not necessarily share our comfort level.

The liaisons' first responsibility was

> to provide an initial presentation about the various strategies and allow volunteer participants in the study to choose which strategy met their needs, or was of the highest interest to them for professional development. Because first and foremost, this [study] was about teachers and researchers growing and learning new things, and managing the implementation of those new things. (NAGC Convention Transcript, 1999, p. 7)

We asked liaisons to describe their preparation for the initial presentation of the information from the big red notebook. Their confidence, experiences, and support from others varied:

> I have to tell you, when I received that binder I thought, "Oh, this is going to be easy. I know this stuff. I've been to Confratute a couple of times. I've worked in gifted education." And so, when I sat down with it, I figured a weekend would do it. Seventy-five hours later, when I finally got through the red notebook and realized there were a lot of things I was either rusty on, or had missed somewhere along the line, and was trying to become very well aware of what needed to be done very quickly, I was totally amazed at what this job was going to entail. (NAGC Convention Transcript, 1999, pp. 37-38)
>
> I found that while we went into this very willing and ended it very willingly, . . . it was a learning curve for me, as well as for the participants. Having been in the field for quite awhile, I thought I knew everything in terms of the strategies. You know, we've all studied Renzulli's Enrichment Triad and we've done the tiered assignments. . . . But [not] actually delivering it in that kind of format. The materials in the book were rich. We now use them all the time with other training models and training sessions that we do in our school system. And so, the material was wonderful, but there was a lot of it . . . . I had to sit down and pour through the material, and organize it in a way that I could deliver in a way that I thought was clear for the people on the receiving end. Because I believe teachers can be some of the hardest audience, you know. And so, I didn't feel comfortable getting up in front of the group unless I felt I really knew that material. (NAGC Convention Transcript, 1999, pp. 38-39)

Two Interventions: Liaisons and Teachers

In essence, two interventions were occurring: training of liaisons and training of teachers who, in turn, worked with their students. Liaisons assumed a huge responsibility as the local trainer. Even if they viewed themselves as minimally or highly experienced, they immediately recognized that they needed to review and study all materials intensively. One liaison said:

> I panicked . . . . We were in an unusual situation because I think all the other districts had one person, and ours—there were two, and that's another story. So, we did have the luxury of having each other, and we planned a time to sit down and go through the book, and we thought, "Oh, a couple of hours we'll get through it." After four hours, we decided we were going to have to meet again, and I think again and again. I think we met many hours trying to get ready. . . . (NAGC Convention Transcript, 1999, pp. 39-40)

Another liaison supported the importance of planning with someone else. They worked together as they reviewed the materials and shared their ideas. The liaison noted that the "administration realized that this was a big task for one person to take, to learn all the materials and be ready to present" (NAGC Convention Transcript, 1999, p. 40). The administration also was quite flexible with the amount of time that might be needed for training. Initially, one whole day was allocated, and it could be used in various increments. As the administration recognized the scope of the research project, the time was extended.

One liaison commented on the 8-hour training day that she planned and compared it to other professional development opportunities:

> I guess the one thing that struck me is the fact that we did our 8-hour training day. If we had stopped there, it would have been like any other staff development. And what made this so powerful is the fact that we met every month for the next year-and-a-half. And without that, it would be—like everything else that we always do—we get a little shot of it and go, "Cool," and then we go home and realize that we just can't do it. So, I think that by the fact that we were part of this study group that forced us to do that—it's what I would do if I was doing it on my own now. I would just make certain that we had that time to continue together. (NAGC Conference Transcript, 1999, p. 41)

Professional Development Module

The liaisons' big red notebooks actually increased in size as they prepared for the training. They added copious notes, additional examples, and stickies everywhere. One liaison described her need for an additional big red notebook:

> When I received the red book—when I first opened it, I thought, "These materials are wonderful." . . . [I]t was just terrific and I treasure it to this day. However, I think my own notes on the red book are [wonderful]. I filled up a red book with my own [information from] books to give the presentation. But it was good. It was a good refresher course. The day that I . . . gave the presentation . . . we had a school committee room; we had the superintendent, certainly, endorsing us. And I made it almost like an opening day of the baseball season. We had the fresh croissants, the fruit, and everything to keep us very happy and satisfied . . . . I worked very hard and so did the participants, in just trying to keep everything organized in their own minds. (NAGC Convention Transcript, 1999, p. 41)

Recognizing that local liaisons were responsible for delivering the university-created training materials, we asked teachers to share some of the frustrations and some of the difficulties encountered in the early months. Teachers described their thinking as they selected the strategy they would implement in their classrooms. Teachers explained:

> . . . I struggled for a long time trying to figure out—well, which one [strategy] do I want to do? Which one's the best? Which one's the most important? Which one will have the best impact? So, I learned two things in the process that finally made everything else fall into place, and they don't necessarily come in order— . . . one you have to pre-assess. You have to know who the different children are in your class, what do they want to do, what they're ready to do. And secondly, . . . [you] have to come up with an overriding generalization. Something—major global objective that you're trying to get the children to [achieve]. If your lesson objective is simply skill-based, these differentiation strategies don't apply. . . . [W]e were teaching cultures. The ancient cultures of the western hemisphere. And until I saw that cultures fit into adaptations, and that it's a man versus nature thing, and that man uses the environment—until I did that, I couldn't [differentiate] my assignments because I had no place to take the better minds. So, pretest and have that global view. Then you can't stop differentiating, and you can't pick one method. They all apply to some element of the lesson. (NAGC Conference Transcript, 1999, pp. 45-46)

> When this opportunity came available to me, I just felt honored. I just didn't think a specialist would be included in a study like this. I felt, "Well, the classroom teachers probably should have first dibs on it," and when I was told that I was certainly

> welcome, I was ecstatic. . . . [P]arents will say, "I don't know what you're doing in . . . class, but my son can't wait for . . . class today." My questioning techniques have changed. My assignments have changed. The way . . . [I] deliver the information has changed. (NAGC Convention Transcript, 1999, p. 47)

Impact of Implementing MDE Strategies

We asked liaisons and teachers to describe how the use of the modification, differentiation, and enrichment strategies changed their classrooms, curriculum, learning process, or instructional techniques. One liaison commented:

> You are probably familiar with teachers who have units on the apple, watermelon, and the pumpkin. Do you know what I'm talking about? My biggest challenge was with the group of first grade teachers who . . . had their training in the spring, were determined they weren't really going to do any implementation until fall because you can't start anything new until you think about it over the summer, and start in September, okay? So, that was their mindset. They couldn't change direction in the middle of the year, or so they perceived. And so, when I went to work with the first grade teachers, their big overall unit of which they [included] everything—math, science, social studies, reading—revolved around the watermelon in September, and pumpkin in October and [applies in] November. And I'm not lying. It's a stretch of the imagination even to think it, but that's what it was. And so, I spent a lot of time meeting with . . . teachers. [The teacher of the gifted and I] were trying to get them to look at . . . big ideas. . . . It was a real struggle for them. That was a whole new way of thinking. [The teachers needed to look] at modifying "their idea of curriculum." (NAGC Conference Transcript, 1999, p. 49)

Analyzing the quality of your own teaching is critical to change and growth. It is important to ask questions such as: What do I do well? What needs to be improved? How do I improve my teaching ability? Teaching is both an art and a science. Sometimes teachers are overwhelmed with the content, new textbooks, new models of teaching, or new assessment techniques. Metacognitive strategies that promote reflection on teaching help teachers understand the need for change. One liaison commented:

> This is just a general before and after kind of a question with the teachers I worked with, but I think in general what you talked about—the big idea—understanding—they realized when they started to look at what they were teaching and how they were teaching and how they were going to change it for whatever method they had chosen—they had to reflect upon what it was they were teaching, and why they were teaching it. And I think that was a big before and after. I think they learned through that process that sometimes they were doing things that didn't have a great purpose or a great understanding behind it. And that creates that self-reflection, I think that was the biggest before and after overall. (NAGC Conference Transcript, 1999, pp. 49-50)

Other liaisons and teachers confirmed that they, too, recognized that the teaching techniques changed. One teacher chose to modify a unit on insects. Before the training, she read books to children and brought in a few insects. After the training, she looked carefully at her questioning techniques. The children were so excited about their learning that she asked the liaison to observe her classroom. The liaison shared the teachers' comments:

> Rather than sitting on the floor in a circle in front of me, and listening to the things I would read and the things I would say, these students are out here working, looking for insects, doing all the comparisons, and just asking more and more questions and seeking answers to those questions. . . . You know, I'll never go back to the other way of teaching, and I'll always look very carefully at the questions that I ask. (NAGC Conference Transcript, 1999, pp. 50-51)

One liaison sought additional data about the participating teachers. The liaison adopted some of our methods to track changes:

> One of the things that I'm celebrating about participation in the study is that I see the participants in my school district moving toward what I consider permanent change. They aren't huge changes, but they're significant, and they have stayed on—none of the people that I worked with last year and the year before have stopped. They're all voluntarily continuing working on their strategy. I had some written feedback this fall from them. I just went and asked what they were doing, if they we still doing anything, because I was just interested. (NAGC Conference Transcript, 1999, pp. 51-52)

Liaisons and teachers described other changes in classroom practices, as a result of participating in the research study. One liaison stated: "I believed that one of the things that cripples our classroom teachers' effectiveness is their reliance on the text, and building their curriculum around the textbook, and I had one teacher say, 'The big difference for her was that she no longer developed her unit around the text.'" The text became a resource to build units around specific objectives and to design tiered lessons for students of varying skills and abilities. Another teacher said: "The biggest change that I think has been positive for me is that I'm now teaching concepts rather than facts, and we've got the big picture. . . ." (NAGC Conference Transcript, 1999, p. 52).

As teachers became more familiar with the strategies, they gained more confidence. One liaison told a story about a teacher who used to require the same type of product from all students. The teacher said: "You know, my students just always sort of produced the same type of products. It's either an oral report or producing a poster" (NAGC Conference Transcript, 1999, p. 51). The liaison noted that the teacher started looking very carefully at the way she presented ideas and posed questions. She provided open-ended opportunities related to the content and concepts of her unit. At first, one or two projects were a little different. The liaison continued to describe how the teacher changed her typical product assignments:

> . . . [After the students] saw someone produce something on a computer disk about . . . [his/her] family, another child put together a little video that was very elementary at that time. But it opened students' eyes to ways that they could convey information and show what they had learned, and with one of the last units she did on water, I don't think there was a single child in the room [who] chose the same type of product . . . . And they did things from tracking the amount of water consumed by their family in a day to doing experiments for the class. It was just amazing what these students did. So, the teachers realized that students are capable of doing much, much more than we ever thought they could. (NAGC Conference Transcript, 1999, p. 51)

Another teacher confirmed that she changed her approach to teaching. "I also have done lessons on goals, reaching goals, and what are goals, and how do . . . obstacles get in the way of accomplishing goals" (NAGC Conference Transcript, 1999, p. 52). Projects, as a way of documenting what students have learned, have also changed—no more word searches, fill-in-the-blanks, or worksheets. Students were now engaged in hands-on activities that challenge their knowledge and increase the expectations for truly understanding and using new content and skills.

Teachers recognized that students became more independent as learners, as they acquired skills of search and techniques for posing questions and finding answers. One liaison offered the following comment about the students:

> As far as students, it's made them become much more independent as learners, and it's given [them] many more choices. And what we expect the students to do to use higher level thinking skills, and make decisions—really the study teaches us to do the very same thinking. It's been quite an intellectual exercise for the teachers. (NAGC Conference Transcript, 1999, pp. 53-54)

Teachers learned to offer students choices for learning opportunities. When students were given choices based on their defined interests, they had a sense of ownership of the topic and were definitely engaged in the learning process. Teachers also noticed that students who struggled in school were experiencing success.

> I had a little boy in my room who could not read—who struggled, struggled, struggled so hard, in reading and math. He was in my classroom, so I knew him very well. I was absolutely amazed. I mean, he created a product that you would say, "Now, why didn't I do that? How come somebody hasn't done that?" He created a product where he was very frustrated with the fact that when you opened the ketchup bottle, you couldn't get the ketchup out. You had to stick the knife down in it to make it start flowing, or you banged it, and then it went everywhere, and he'd gotten in trouble for that at home. So, he created a wonderful, simple device that you inverted the things, and that's how you stored them, so they were ready to go . . . . (NAGC Conference Transcript, 1999, p. 55)

Suggestions for Improving the Implementation Process

The final question was: If you had to give advice to the rest of us about modification, differentiation, and enrichment, what are the lasting rules and principles that we ought to pay attention to? Participants in the NAGC Conference Session offered their suggestions:

> I guess I would say it [the training] has to be on-going. I think that's what the teachers appreciated the most. That we constantly came back and re-visited the kinds of things that we were doing. When we were having problems, we needed to use each other as a resource, and every kind of training has to be something that those being trained need to be able to have some place to be able to go. So, that obviously, is what really made a difference because at the end of this study, people had really a thorough understanding of that strategy, and it has become part of their repertoire. So many of them had gone to conferences, come back with a great idea, put it on the shelf behind their desk, going to get to it someday, never having an opportunity to really practice it. And I heard that time and time again. (NAGC Conference Transcript, 1999, pp. 56-57)

Teachers realized that their experience with the strategies in the big red notebook had just scratched the surface. Liaisons and teachers read and discussed the articles as part of the big red notebook. They also started looking at a lot of literature. They chose articles they thought would be of value. The whole process of reviewing current literature, discussing the content, and reviewing their teaching techniques started to spread. This process took time, as teachers learned more about their pedagogy, they recognized they also needed to know more. One liaison commented:

> I had actually put aside a new issue of *Educational Leadership,* and there was an article on differentiation that I thought I should make a copy for all of [the teachers]. But the next time we met, they brought it to me and said, "We have got to read this and discuss it!" So, . . . [by] lifting the bar . . ., they became much more aware and were going out and finding things. . . . "We just scratched the surface." (NAGC Convention Transcript, 1999, p. 57)

Administrative support and talented liaisons made a difference. Administrative support at the school and central office level was critical. One administrator provided release time for the training, In addition, "she provided release time for up to two hours each month for [what] I call . . . counseling sessions, where all . . . teachers come together to dialogue, to share, to talk about ideas, to help us tweak whatever they might have been trying" (NAGC Conference Transcript, 1999, p. 59).

Participants also commented that we must remember that "teachers come to the table with a different level of expertise and understanding, not only of the differentiation process, but of the content areas." Because modification, differentiation, and enrichment require knowledge of the disciplines, teachers need to really understand the content areas.

Others gave advice such as taking small steps in the process and taking risks with their approaches to teaching and learning. "My advice would be to start small, take baby steps, and do it with a friend" (NAGC Conference Transcript, 1999, p. 59).

> . . . [Don't] be afraid to be the liaison. . . . I did not have to be the sage on the stage, and I didn't have to know it all, and I took my role as the guide on the side. . . . I would say go for it, because I think that growth for everybody is so beneficial, and . . . you don't have to know it all. (NAGC Conference Transcript, 1999, pp. 60-61)

One liaison captured the importance of the training with the big red notebook:

> We've kind of come full circle in my district because [the training] was so successful and we certainly had a lot of support from the administrators, this year I've been asked to do the same training from the red book with all first and second grade teachers. But what's going to be great is my first and second grade teachers [who] were part of a study—they're going to be showing examples of what they've done and how it's changed their classrooms. (NAGC Conference Transcript, 1999, p. 61)

Trainees became trainers—what more could be asked of an intervention designed to extend the pedagogy of gifted education to all students. The notion of trainer and trainee became blurred as research study participants learned from each other and expanded their understanding of modification, differentiation, and enrichment.

Summary

We invited liaisons and teachers participating in our research study to join us at the National Association for Gifted Children Conference to share their experiences and describe the extent to which we were successful in creating an intervention, which reflected our approach to training educators, and sharing it with local liaisons who were at various stages as professional development trainers. Liaisons with and without extensive prior background in gifted and talented education described their learning curve and the need to revisit the module and carefully think through how they were going to present it to their colleagues. Liaisons spent many hours preparing for the training day and soon realized that more time would not only be needed; teachers would demand it. Two interventions were actually occurring: training of liaisons and training of teachers, using the detailed guidance and suggestions in the "big red notebook." Both liaisons and teachers recognized that this approach to professional development was much more effective than the typical one day presentation by an expert, without opportunities for follow-up discussions or lessons. Some liaisons used study groups, collaborative planning, and peer observations to support their teachers' implementation of modification, differentiation, and enrichment strategies. At the end of the research study, however, it is truly an individual's decision to continue with using the selected strategies or to return to prior practices.

CHAPTER 14: Follow-up Questionnaire

E. Jean Gubbins

One of the concerns of researchers who spend considerable time developing and launching a large-scale study is: What happens when the research is over? Our multi-year study of using the pedagogy of gifted education in the regular education program required a complex approach to providing the requisite professional development skills. We designed the training the way we were accustomed to working with educators. Would local liaisons be able to study the techniques outlined in the professional development module and train staff members? When the training and research study were completed, what would happen?

Gathering Final Data

We designed a 3-item questionnaire for liaisons as a 1-year follow-up to the professional development study. The questions were:

1. Have you used any of the training materials in the "big red notebook" this year? If so, please describe how and with whom?
2. Have any of the teachers, who participated in the study last year, continued to use modification, differentiation, or enrichment strategies this year? Are you aware of any practices in classrooms that could be attributed to what teachers learned from their experiences in the study? If so, please provide a description.
3. Have any administrators in your district discussed the impact of the NRC/GT study or have any policies changed in your district as a result of the study? If so, please explain.

We received completed questionnaires from 21 liaisons. A few liaisons attached additional correspondence, newspaper articles, or internal memos related to the overall study and the process of modification, differentiation, and enrichment. One liaison included a copy of the email sent to the teachers that stated: "I have received a final (?) questionnaire from the National Center for Gifted Education and need some information from you. . . ." The liaison was obviously intimating that this follow-up questionnaire may not be the last data collection opportunity from the NRC/GT. Given the volumes of paperwork that we collected, the comment was justified. However, this questionnaire was truly the final piece of data.

Continued Use of the Big Red Notebook

In response to question 1 about continued use of the training materials in the "big red notebook," 76% of the liaisons were still using the professional development module in their school district; several liaisons were also sharing the materials at conferences and workshops. Some of the liaisons even took the time to record which transparencies were culled from the book because of their relevance to their work. One liaison commented:

> I have used the overheads and materials concerning Tiered Assignments in teacher workshops (Spring 1999 & 2000). In these two, 3-session workshops (1.5 hrs. each), I used overhead #28 to define differentiation; #30 to show ways students differ; #35 Indicators of Differentiation already taking place; #37 Differentiation

> within the Curriculum; and then #39-#46 to show ways to preassess students. Along with this, I provided the teachers with a copy of the sample parent letter. Finally, I used #52 (Features of Tiered Activities) as we more thoroughly explored the strategy. I also presented Tiered Assignments at a Statewide Gifted Conference and used overheads #28 and #30 as part of that hour-long presentation. (Liaison #10)

> Yes, I have used parts of the "brb" in after school workshops and inservices with elementary school staffs. I have also used selected pages at the conference presentations, i.e., Early Childhood Conference. . . . (Liaison #1)

In addition to selecting specific transparencies, and forms, a couple of liaisons used the big red notebook as a reference and resource as they worked with teachers at grade or school-level meetings.

> We have used some of the materials on differentiated lessons for Grade Level meetings with each of the four grades. All teachers were required to turn in tiered lesson plans. We used the forms in the big red book to help teachers see how they needed to plan. (Liaison #7)

> Yes, I've instructed two new 4th grade teachers on curriculum compacting for math. I provided enrichment options & conferencing w/ their students who qualified [for] each chapter. (Liaison #16)

It is evident from the comments above that liaisons still recognize the quality of the available materials and use them as a basis for their own consulting and inservices. Having the large collection of potentially useable information under one cover certainly made it easier for liaisons to customize the materials for their personal and professional use.

Of the five liaisons who responded "no" to question 1 about the training materials, three indicated that they may use them in the future or they would seek further professional development opportunities.

> No, I haven't, but I would like to use them next year in a series of training sessions for interested faculty. (Liaison #5)

> I have not used the materials this year. I am sure that I will use them in the future. (Liaison #9)

> No. We have decided to train staff by sending them to Confratute [University of Connecticut] rather than training them within the district.

Continued Use of Strategies

When we asked liaisons if any of the teachers who participated in the study were continuing with the modification, differentiation, and enrichment strategies, 100% said "yes," even those liaisons who said "no" to the question about their personal use of the big red notebook. Not every teacher at every site was still applying the strategies, but, overall, the response was quite positive as their comments illustrate:

> I still from time to time use modification and differentiation strategies with my students. One thing that I discovered from participating in this study was that

> grouping students based on ability did work. The "more gifted" students exceed basic requirement, whereas the "slower" students relied on one another since there was no "smart" student in the group to do the work for them. They did turn in work and it was at the basic level of the group. I don't use this all of the time, however for certain projects it works really well. And I think every student comes away from the assignment feeling good about the level of work . . . achieved. (Liaison #2)

> Yes, the teachers have continued to use several of the strategies. I have seen the use of centers, and technology to add depth and breadth to the existing curriculum. Some teachers are pretesting and compacting curr[iculum]. They are becoming more critical in their use of resources (triaging). (Liaison #1)

> Each of the teachers continues to use and *expand* strategies with students/classes. One teacher has become the unofficial (but very effective!) "trainer" for her team (interdisciplinary). I see more evidence of the skills being used in other classrooms. (Liaison #11)

> Teachers have continued to modify, differentiate, and use enrichment strategies. [Teacher name], the kindergarten teacher, continues to modify units. Her poetry unit this year was outstanding. Students produced poems that were very advanced for kindergarten. Teachers like [another teacher's name] continued using open-ended activities for major units of study. One of the first grade teachers used independent projects for her students and shared the idea with a colleague who followed with similar activities. (Liaison #7)

> I would say that most, if not all, of the teachers continue to use pretesting and to give more student choice, which they see as "differentiation through breadth." Sometimes I am aware of people modifying units, tiering, and *very* occasionally, compacting, because teachers often call on me to plan with them. (Liaison #13)

Liaisons' comments confirmed teacher involvement with the selected strategies to help them apply gifted education pedagogy in regular classrooms. They also confirmed the role liaisons assumed in the study. Liaisons kept abreast of the treatment teachers' work and stayed involved in coaching and curriculum development roles.

Administrative Role and Policy Changes

Responses to question 3 were not quite as positive as the answers to prior questions. We wanted to know if district administrators discussed the impact of the NRC/GT study or if any policies changed as a result of participating in the study of modification, differentiation, and enrichment strategies. Five liaisons said no. Others commented that administrators discussed the impact of the NRC/GT study, and a few noted changes in policies. For some administrators, the NRC/GT research study raised their level of awareness for the need to modify, differentiate, and enrich the curriculum. For others, they attended meetings or workshops related to gifted and talented education, supported faculty by encouraging them to attend conferences, funded training opportunities, or hired additional resource personnel. A few liaisons noted that lack of adequate professional development opportunities due to financial constraints. Sample comments included:

> Professional development is seriously neglected in our district due to the lack of substitutes to cover classrooms. (Liaison #1)

> NRC/GT study took place at middle school. This year, middle school principal has attended 2 G/T state level meetings this year—his first two! Middle School Site Base Council dedicated $1000 to be used by middle school teachers for G/T activities. (Liaison #2)
>
> The study has impacted our program significantly! As we rethink and restructure our . . . Program to be more in line with current practice and research, the NRC/GT is viewed by district admin., teachers & parents as [a] resource (on-going) and model of essential importance. *THANK YOU* for providing such invaluable experience for our teachers! (Liaison #11)
>
> Our whole system is working toward differentiating instruction to meet the needs of our students. Our administrators have discussed the impact of the study at district, as well as school meetings. The policy of requiring tiered lesson plans from all teachers is a new policy for our school. The system adopted a strategic plan that included differentiation. (Liaison #7)
>
> The administration is certainly more aware of the need for differentiation. Several inservice workshops have been given, and the administration is very supportive. . . . (Liaison #15)

Summary

The research process is truly complex. Designs are created to test curriculum, instruments, treatments, pedagogy, or instructional approaches. Detailed plans are made to ensure that the research questions, hypotheses, or "grand tour" questions are addressed thoroughly. Standards of research are applied to maintain the fidelity of the research study. Research in schools is sometimes difficult because of the number of potential people who may be responsible for implementing this complex process. Our research study was longitudinal, with a design that required almost total reliance on local liaisons and participating teachers for the training and implementation of the treatment. Throughout the implementation period, we used interim data to assess the progress of the intervention.

We viewed the "big red notebook" as a starting point that allows a school district to develop a shared vision of modification, differentiation, and enrichment. Cognitive coaching, planning, implementation, and reflection were not addressed completely. These hallmarks associated with the change process are integral to differentiated supervision and should occur after the vision becomes "common." Comments from the follow-up survey illustrate that some liaisons agreed that this study was just the beginning. The detailed intervention materials allowed liaisons opportunities to expand their professional development roles beyond their own district: "In August several of us who were part of the "BRN" training will attend and present at our annual State Gifted Leadership Symposium" (Liaison #11).

Other liaisons were pleased that they were part of this research study and were interested in the results of the study: "It is the best, most organized learning experience I have ever had. Thank you so very, very much (Liaison #14).

CHAPTER 15: Discussion and Conclusions

E. Jean Gubbins

> *I really enjoyed the whole process, but I feel like we were all in an infancy stage. So, we had a lot to learn, and I think we did.*
> (NAGC Convention Transcript, 1999, p. 33)

Designing Challenging Opportunities for All Students

As researchers interested in identifying and nurturing the gifts and talents of young people, we decided to look at the issues related to need-based programs and services. We recognized the dual purpose of making more teachers aware of the academic needs of gifted and talented students and applying instructional strategies in regular education programs. The initial research team of Karen Westberg, Deborah E. Burns, E. Jean Gubbins, and Sally M. Reis of the University of Connecticut planned a 5-year study. We wanted to use gifted education pedagogy with all students. Each of us had extensive training and experiences with gifted and talented students in various educational settings. We were accustomed to designing curricula and challenging academic opportunities in our pull-out classes to be responsive to the phrase by Marland (1972) in the first national study of gifted education supported by national legislation: "services or activities not ordinarily provided by the schools" (p. 2). Our curricula included content acceleration, creative thinking skills, critical thinking skills, research skills, communication skills, product development, simulations related to problem-based learning, and student-initiated research studies. The depth, breadth, complexity, pace, and student-initiated studies of real problems would not be interesting or even appropriate for all students. It was also true that students who had not mastered the regular education curricula were not in a position to pursue the curricula and challenging educational opportunities that were the focus of the pull-out classes for identified gifted and talented students. However, there were instructional approaches and curricular opportunities that were "good for all students." Therefore, we launched a multiphase study with the central theme of professional development to extend gifted education pedagogy to the regular education classroom. Our research objectives included the following:

1. To complete a comprehensive national survey on professional development practices in schools and the manner in which these practices related to identification and services provided to talented students.
2. To investigate the effectiveness of existing NRC/GT professional development modules on curriculum compacting, thinking skills, and high-end learning opportunities.
3. To investigate the professional development and training methods that can be used to implement various modification, differentiation, and enrichment strategies in schools across the country.
4. To develop an effective, research-based professional development module on using gifted education pedagogy with all students.
5. To determine the extent to which we could use research-based training techniques, implementation handbooks, videotape modules, and multiple professional development methods throughout the county without direct involvement from the NRC/GT in delivering on-site training.

6. To determine the extent to which gifted education pedagogy would improve educational opportunities for all students, while simultaneously addressing the specific needs of gifted students.

We designed a survey of professional development practices in gifted education. We offered the following definition of professional development to guide educators' thinking as they responded to survey items: "Professional development is a planned program of learning opportunities to improve the performance of the administrative and instructional staff" (NRC/GT, 1996).

We thought long and hard about the type of information that we wanted to know. We conducted a thorough review of the literature, attended conferences, convened groups of professionals with various prior experiences, and drafted potential items. We wanted to know the extent to which professional development was really tied to the overall visions of school districts. Some of the resulting data from the survey (see Westberg et al., 1998) include:

- Gifted education specialists rarely provide professional development training to other faculty members within their school district.
- Gifted education programs most often served students in grades 4-6.
- The most frequently used service delivery model is a pull-out program for elementary students and within-classroom programs for middle school students and high school students.
- The majority of districts do not evaluate the impact of their professional development practices in gifted education on teachers and students.
- Demonstrations in the classroom are seldom conducted to share information about gifted education.
- Peer coaching between classroom teachers and gifted education teachers is seldom used to provide professional development. (p. 4)

The survey of professional development practices in gifted education confirmed that the regular classroom was still the main location of educational experiences for gifted and talented students, unless they attended full-time classes or full-time schools dedicated to their needs. Since this was not an educational reality, we established a plan to determine the professional development practices in gifted education and designed a classroom intervention to bring the pedagogy of gifted education to regular education classrooms.

We analyzed our own approaches to professional training, discussed the limitations of short-term involvement in working with school districts for 1 or 2 days, and outlined our thoughts about meeting the academic needs of diverse student populations. We went through an iterative process of defining and describing the pedagogy of gifted education. Essentially, we decided that it was critical to ensure high quality curriculum that focused students' learning, to attend to the academic diversity of students by altering the depth, breadth, and pace of learning, and to enhance and extend learning by seeking solutions to interest-based problems and issues. After brainstorming a number of possible definitions and lists of skills, we focused on the following pedagogical approaches and definitions as responses to academic diversity:

> ***Curriculum Modification*** involves the analysis, evaluation, and improvement of existing curriculum units and lesson plans. Modified units increase challenge, authenticity, and active learning to improve learning and achievement.
>
> ***Curriculum Differentiation*** is a process teachers use to enhance learning to improve the match between the learner's unique characteristics and various

curriculum components. Differentiation involves making changes in the depth or breadth of student learning. Differentiation is enhanced with the use of appropriate classroom management, varied pedagogy, pretesting, flexible small groups, access to support personnel, and the availability of appropriate resources.

Enrichment consists of three types of activities:

> Type I Enrichment—experiences and activities that are purposefully designed to expose students to a wide variety of topics, issues, and activities not ordinarily covered in the regular curriculum.
>
> Type II Enrichment—the use of instructional methods and materials that are purposefully designed to promote the development of thinking skills and foster the use of authentic, investigative methods in students.
>
> Type III Enrichment—Investigative activities and artistic productions in which the learner assumes the role of a first-hand inquirer and a practicing professional. (Renzulli, 1978)

These definitions of curriculum modification, curriculum differentiation, and enrichment provided guidelines for reviewing, improving, deleting, or enriching existing or created curriculum. Each definition was linked to one or more specific strategy:

1. Modification, using an existing curriculum unit
2. Differentiation, using open-ended activities
3. Differentiation, using alternative activities
4. Differentiation, using tiered activities
5. Enrichment, using curriculum compacting and interest-based curriculum activities for some students
6. Enrichment, using the Enrichment Triad Model in the classroom for all students

We described multiple approaches to adding these strategies to teachers' repertoires. We developed four professional development training modules to pilot in elementary and middle school classrooms, consisting of background information on NRC/GT; over 85 transparencies with accompanying scripts on conceptions of giftedness, curriculum modification, curriculum differentiation, and enrichment learning and teaching; NRC/GT videotapes and handbooks, and selected articles. Local trainers shared the modules with 5 or fewer teachers in their school districts. We concluded the following from our pilot study of the four professional development modules:

- Trainers evaluated the training materials as high quality.
- Trainers requested more examples of strategies to help them with their coaching responsibilities.
- Trainers wanted samples of completed forms.
- Trainers recognized the reluctance to change teaching practices among some staff members.
- Trainers viewed administrative support as an important element to keep the focus of the innovation.

Feedback from local trainers provided the data we needed to modify the professional development modules. We merged the four modules into one and provided additional examples for teachers. We established the research protocol and sought district involvement throughout the country. We invited approximately half of the districts to send classroom or gifted education teachers for on-site training and the remaining teachers would receive all materials through the mail. These teachers would become our liaisons who delivered the training to their group of teachers within the district. The intervention described in detail in earlier chapters lasted for 1 1/2 years. For some liaisons and teachers the time period was too long and for others it was too short. Each person involved in this professional development study had to make a commitment to learning and applying strategies often associated with gifted education in their regular education programs. As liaisons, the responsibility was tremendous. They were the professional developers, which may have been a familiar or unfamiliar role within or outside their district. They had to guide, support, and cajole teachers to adhere to the study's protocols and to maintain the flow and completion of all required documents.

Participating teachers were expected to learn and apply one or more strategies to modify, differentiate, and enrich the curriculum. Their willingness to analyze their existing approaches to learning and teaching and to make changes are hallmarks of exemplary professionals. Not all liaisons and teachers achieved the same level of expertise and involvement in learning and applying the recommended training and teaching techniques. However, there were many positive outcomes throughout the implementation of the study. Whether the changes liaisons and teachers made were small or big can only be assessed by each individual's reflections. The following conclusions about their accomplishments are listed without qualifiers on every statement, such as majority of teachers, some liaisons, or several liaisons. These conclusions represent very general statements, and they should not be attributed to every single person involved in this research study.

Liaisons

- Liaisons successfully adopted the training materials in the professional development module.
- Liaisons recognized the increase in their depth and breadth of knowledge in how to modify, differentiate, and enrich curriculum.
- Liaisons became local experts as a result of their knowledge and experiences with modifying, differentiating, and enriching curriculum.
- Liaisons recognized the need to differentiate training for local teachers. Just as the students were not all at the same level of expertise, neither were the teachers who agreed to participate in the intervention study.

Teachers

- Teachers learned how to enhance or change some of their instructional and curricular strategies. Not all teachers were as successful with the strategies. Some persevered; others did not continue as participants.
- Teachers benefited from the long-term nature of the study.
- The learning curve for teachers and liaisons varied, which reinforced the need to consider differentiated professional development experiences.
- Teachers responded positively to the strategies as they reflected on the positive responses of their students.
- Teachers and liaisons who were supported by their administrative teams found it easier to support the implementation of an innovation.
- Treatment Group teachers changed their classroom practices, as compared to comparison group teachers.
- Students who worked with treatment group teachers reported positive changes in their class activities.
- Teachers raised their level of expectations for student work. They recognized that students were ready for challenging work.

NRC/GT Professional Development Principles

Looking back on the data and the outcomes from several studies conducted by NRC/GT led to a synthesis of professional development principles. Over and over, one word captured the essence of the principles: CHANGE. Change is certainly difficult; it is a process. We may be acutely aware of the need to restructure a curriculum unit, develop challenging opportunities for students to demonstrate their mathematics or science skills, or address students' affective needs. Of course, the level of change required to respond to any of these identified needs would vary by person. Most likely, a quick fix would not be appropriate for any plan to effectively change one's curriculum, instructional style, or classroom climate. Far too many times, a mediocre plan is created just to do something different. We really do not know if the plan will result in improvement or the desired change. We may just want to try something without really analyzing the best way to approach an articulated plan that is responsive to the identified needs at the school, grade, or personal levels. We do not always attend to the context in which the change must take place. The following principles consider the person, as well as the environment, the process, and the end product (e.g., changes in behavior, knowledge base, and instructional approaches).

1. Professional development requires a personal and professional commitment to make a change in existing strategies and practices.
2. Professional development opportunities have to be in response to an identified need: school level, grade level, small group, or individual.
3. Professional development must be multi-faceted and responsive to varied learning styles.
4. Professional development needs to go beyond knowledge acquisition; knowledge and experiences must be applied.
5. Professional development may require mentor/protégé experiences.
6. Professional development may be more effective with opportunities to observe master teachers in similar roles, engage in collegial coaching, and demonstrate practices.
7. Professional development requires time for reflection (e.g., How does this new strategy or practice add to my repertoire? Should this new strategy or practice replace a former one?).
8. Professional development needs to have an impact on students, teachers, curriculum, school policies, or school procedures.
9. Professional development needs to be valued.
10. Professional development requires a desire to learn. Lifelong learners want and need opportunities for continual growth.
11. Professional development requires a "personal growth plan" (e.g., What do I want to accomplish? What job will I seek? What skills do I need? How will new skills make a difference in the school or community? How will students benefit?).
12. Professional development requires prolonged time, practice, feedback, and reflection.
13. Professional development needs to be differentiated (e.g., What do I know? What do I need to know? How will I seek opportunities to learn? How will I share the experiences with others?).
14. Professional development plans should reflect creative problem solving guidelines (e.g., find the problem, identify the problem, and seek sources to resolve or redefine the problem).
15. Professional development requires administrative and collegial support and a willingness to experience failure.

16. Professional development requires the collection, analysis, and application of school-level and district-level data to make informed decisions. (Gubbins, 2000, pp. 1-2)

Improving Professional Development

Improving the quality of professional development is a critical topic for all educators. It is particularly important for gifted education because gifted and talented students still spend the majority of classroom time in regular classrooms. Professional development is an on-going opportunity to help educators meet stated goals. It has to take on many forms because just as it is important to recognize the academic diversity of students, we must recognize the diversity of teachers' pedagogical approaches. Professional development should be responsive to educators' needs to avoid the notion that it is an event for all educators, without any consideration for identified needs (Gubbins, 2000). The following approaches represent some possibilities:

- reading books and journals
- attending conferences, institutes, and workshops
- discussing educational issues with colleagues
- conducting workshops
- writing articles, chapters, and books
- implementing action research projects
- reflecting on courses, classes, or seminars
- viewing educational videotapes
- listening to professional development audiotapes
- assembling study teams around common identified needs
- adopting a peer coaching model

We need to continue increasing our understanding of "what works" in helping teachers modify, differentiate, or enrich the curriculum in response to the academic diversity of students. In some cases, liaisons conducted "job embedded" professional development opportunities. An on-going, trusting relationship evolved in which teachers and liaisons collaborated to enhance and extend the education of their students. Years as a teacher or the current grade level did not make a difference in teachers' success with the strategies. Their commitment to understanding, studying, practicing, reflecting on the strategies, and responding to students' needs was the key to successfully integrating the pedagogy of gifted education in regular classrooms. One liaison described the ups and downs of the implementation process:

> Well, it's not over because the teachers don't want it to be over. And even the ones I thought didn't get anything out of it, are suddenly showing up in my room and saying, "Do you remember when I did this? Can we try something different?" And it's like they got it. They sort of got it. And that's been the upswing. We're now in the upswing part of it, so it's kind of exciting again. (NAGC Convention Transcript, 1999, p. 35)

Summary

Our planned intervention to extend the pedagogy of gifted education to regular classrooms was just one step in looking at the needs of one, some, or all students. The professional development module was well articulated with a sound rationale for addressing students' needs. We shared multiple techniques to understanding and learning how to use each strategy. Participating teachers chose one or more of these strategies to enhance teaching repertoires. And, we incorporated several forms of documentation to aid us in understanding the training and implementation processes from a distance. Our study of extending gifted education pedagogy to regular classrooms was a successful match for almost all participating liaisons and teachers. Those who chose not to continue in the study experienced professional and personal roadblocks. To achieve the goals and objectives of this research study, liaisons and teachers needed to accomplish the following:

- demonstrate a thorough understanding of the strategies and skills,
- express a willingness to engage in experiences as "teacher as student,"
- adopt "habits of mind" to judge the quality and challenge level of existing curricula,
- adapt, adopt, or create resources,
- practice and reflect on growth in using strategies,
- foster collegial and administrative support, and
- maintain a positive attitude about changing typical classroom practices.

The "big idea" to be extracted from this study of extending gifted education pedagogy to regular classrooms is best summarized by a quotation from Bertolt Brecht who stated: "The world of knowledge takes a crazy turn when teachers themselves are taught to learn" (source unknown).

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Appendix A
Professional Development Practices in Gifted Education
District Level Survey

PROFESSIONAL DEVELOPMENT PRACTICES IN GIFTED EDUCATION
DISTRICT LEVEL SURVEY

NRC
G/T

The National Research Center on the Gifted and Talented
University of Connecticut
362 Fairfield Rd., U-7
Storrs, CT 06269-2007

This study focuses on the nature of **professional development practices in gifted education** across the United States. **You can help us learn more about these practices by taking a few minutes to complete this questionnaire. Please be assured that your answers will be kept strictly** confidential and that all reporting will be done at the group level.

For the purposes of this survey, professional development is defined as a planned program of learning opportunities to improve the performance of the administrative and instructional staff.

Please read each question and respond accordingly for your school district.

I. RESPONDENT INFORMATION

A. Please check the box that best describes your position.

1. Superintendent of Schools ☐
2. Assistant Superintendent of Schools ☐
3. Professional Development Coordinator ☐
4. Pupil Personnel Coordinator ☐
5. Special Education Coordinator ☐
6. Gifted Education Coordinator ☐
7. Principal ☐
8. Other ____________________ ☐

B. Indicate the number of years in your present position in this district. ☐

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II. STUDENT AND DISTRICT INFORMATION

Please answer the following questions about the students in your school district.

A. Indicate the **approximate number of students** in your district. ☐

B. What are the **approximate** percentages of students in your district that belong in the following ethnic groups? **The total for all applicable categories should equal 100%.**

Black Non-Hispanic American	Asian or Pacific Islander/American	Puerto Rican	Other Hispanic or Spanish-surnamed American	American Indian or Alaskan Native/ American	White Non-Hispanic American	Other
1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐

C. Please **estimate** the **percentage of funding for professional development in gifted education** as compared to your total professional development budget (e.g., 10% of professional development budget).

☐

D. Indicate the primary decision-maker for **professional development practices in gifted education** in your district.

Superintendent of Schools	Assistant Superintendent of Schools	Professional Development Coordinator	Pupil Personnel Coordinator	Special Education Coordinator	Gifted Education Coordinator	Gifted Education Teacher	Principal	District-wide Committee
1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

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III. GIFTED EDUCATION PROGRAM

A. Does your state have a mandate to **identify** gifted education students?

1 ☐ Yes 2 ☐ No 3 ☐ I don't know

B. Does your state have a mandate to **serve** gifted education students?

1 ☐ Yes 2 ☐ No 3 ☐ I don't know

If your district does not have a formal gifted program, skip questions III C – III G and go to Section IV on page 5.

C. Please indicate the **number of gifted education specialists (e.g., teachers, coordinators, consultants)** in your district.

☐

D. Please estimate the amount of time **gifted education specialists** provide **professional development practices** for other faculty in your district. Place a check (√) in one box only.

Daily	Weekly	Monthly	Several times a year	Annually	Not at all
1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐

E. Indicate the **grade levels** served by your **gifted education program.**

K	1	2	3	4	5	6	7	8	9	10	11	12
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

F. In its entirety, **how long has your gifted education program been in existence?**

☐ Years

G. What is the **approximate percentage of gifted education services** delivered by each of the following program formats? The total for all applicable categories in each row should equal 100%.

- **Within-Class Programs** address the needs of high ability students who are in heterogeneously grouped classes with their same-age peers 100% of the time. The percentage of high ability students in these classes may vary.
- **Pull-Out Programs** offer students services in a resource room format for a specific amount of time per week. Many programs operate for a minimum of two hours each week.
- In schools with heterogeneous populations, students in **Separate Classes** receive their instruction in homogeneous groups for all or some content-area courses.
- Students attending **Separate Schools** are grouped with peers of similar ability on a full-time basis in schools designated for the gifted and talented.
- **Summer/Saturday/After School Programs** include opportunities for students outside the normal school day or year, which may be sponsored by the school (e.g., workshops, seminars) or external agencies (e.g., special courses at museums or galleries, university institutes or scholars' programs, talent searches, Governor's schools).

Indicate the percentages in the boxes below.

	None	Within-Class Programs	Pull-Out Programs	Separate Classes	Separate Schools	Summer/ Saturday/After School Programs
Elementary School	☐	☐	☐	☐	☐	☐
Middle School	☐	☐	☐	☐	☐	☐
High School	☐	☐	☐	☐	☐	☐

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For the purposes of this survey, professional development is defined as a planned program of learning opportunities to improve the performance of the administrative and instructional staff.

Responses for Entire School District	☐	Check this box (√) if your responses reflect the **professional development practices in gifted education** for your district.
Responses for Site-Based Management School Only	☐	Check this box (√) if your district uses site-based management. Please select **one** school and complete all responses for the remainder of the survey in consultation with the site-based management team.

GUIDE TO RESPONSE CATEGORIES

1 Not an accurate statement about our school practices
2 A slightly accurate statement about our school practices
3 A generally accurate statement about our school practices
4 A completely accurate statement about our school practices

IV. PROFESSIONAL DEVELOPMENT PRACTICES

A. Mission and Philosophy Statements

	Not Accurate 1	Slightly Accurate 2	Generally Accurate 3	Completely Accurate 4
1. Our school district has developed a **comprehensive** mission and philosophy statement for gifted education. [If you selected (1) "not accurate," skip to Section IV B.]	☐	☐	☐	☐
2. The mission and philosophy statement was developed in **collaboration** with other faculty and community members.	☐	☐	☐	☐
3. Our mission and philosophy statement describes the **goals, practices,** and **participants** within our gifted education program.	☐	☐	☐	☐
4. The mission and philosophy statement for our gifted education program describes **future directions** for program growth and improvement.	☐	☐	☐	☐
5. The mission and philosophy statement **guides professional development practices** in gifted education.	☐	☐	☐	☐

B. Needs Assessment

	Not Accurate 1	Slightly Accurate 2	Generally Accurate 3	Completely Accurate 4
1. A **needs assessment** related to gifted education has been conducted within the **last 3 years** on gifted education practices. [If you selected (1) "not accurate," skip to Section IV C.]	☐	☐	☐	☐
2. The needs assessment process involved the following **stakeholders:** teachers, administrators, parents.	☐	☐	☐	☐
3. The needs assessment process has been used to **identify professional development practices.**	☐	☐	☐	☐
4. Our professional development practices are directly **related to our needs assessment.**	☐	☐	☐	☐

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	Not Accurate 1	Slightly Accurate 2	Generally Accurate 3	Completely Accurate 4
C. Goal Setting				
1. Annual professional development goals in gifted education are established for our **faculty.** [If you selected (1) "not accurate," skip to Section IV D.]	☐	☐	☐	☐
2. Annual professional development goals in gifted education are established for our **gifted education teachers.**	☐	☐	☐	☐
3. Annual professional development goals in gifted education are established for our **classroom teachers.**	☐	☐	☐	☐
4. Our administrators encourage classroom teachers to identify **individual professional development goals** related to gifted education practices.	☐	☐	☐	☐
D. Incentives				
1. A **variety** of incentives are connected to our professional development practices in gifted education. [If you selected (1) "not accurate," skip to Section IV E.]	☐	☐	☐	☐
2 **Ancillary** incentives are offered for professional development practices (e.g., continuing education units, release time, attendance at conferences).	☐	☐	☐	☐
3. **Extrinsic** incentives are offered for professional development practices (e.g., college credit, salary enhancement, stipend).	☐	☐	☐	☐
4. **Intrinsic** incentives are offered for professional development practices (e.g., recognition as a role model, media recognition or attention, additional responsibilities, perceived benefits to students/parents).	☐	☐	☐	☐
E. Design of Professional Development Practices				
1. Professional development in gifted education has been provided within the **past 3 years.** [If you selected (1) "not accurate," skip to Section IV F.]	☐	☐	☐	☐
2. Professional development in gifted education is provided in a **variety of formats.**	☐	☐	☐	☐
3. The **needs of individual faculty** are taken into account in designing professional development practices in gifted education.	☐	☐	☐	☐
4. **Beginning, intermediate, and advanced levels** of professional development in gifted education are provided to our faculty.	☐	☐	☐	☐
5. Our professional development practices are designed to provide:				
a. **Awareness** of gifted education practices	☐	☐	☐	☐
b. **In-depth information** about gifted education practices	☐	☐	☐	☐
c. **Direct impact** on faculty members' present practices	☐	☐	☐	☐

Please turn over for next page ➡

F. Impact

	Not Accurate 1	Slightly Accurate 2	Generally Accurate 3	Completely Accurate 4
1. We have evaluated the impact of our professional development practices in gifted education on **teachers and students.** [If you selected (1) "not accurate," skip to Section IV G.]	☐	☐	☐	☐
2. The results of the evaluation data have been used to **plan future professional development practices** in gifted education.	☐	☐	☐	☐
3. Our professional development practices have had a positive impact on **teachers' knowledge base** regarding gifted education.	☐	☐	☐	☐
4. We have seen a positive change in **teachers' instructional skills and abilities.**	☐	☐	☐	☐
5. We have seen improvements in **teachers' curriculum development** practices.	☐	☐	☐	☐
6. We have seen improvements in teachers' ability to **differentiate curriculum for students.**	☐	☐	☐	☐
7. Professional development practices have had an impact on gifted education **policies and procedures.**	☐	☐	☐	☐
8. Professional development practices have had an impact on the number, nature, and/or quality of **gifted education services.**	☐	☐	☐	☐

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G. **Professional Development Areas**

Place a check (√) in the box indicating the frequency and audience for each of the following.

To what extent and for whom have professional development practices been provided in the following areas during the last 3 years?	Frequency				Audience					
	Never	Once in the last 3 years	2-3 times in the last 3 years	More than 2-3 times in the last 3 years	All	Elem School	MS/JH	HS	G/T Teachers	Admin
1. Characteristics and Identification of Gifted/Talented Students										
2. Programming Models										
3. Acceleration Options										
4. Enrichment Options										
5. Use of Technology										
6. Meeting the Needs of G/T in the Regular Classroom										
7. Social-Emotional Needs of G/T										
8. Curriculum Modifications										
9. Curriculum Development										
10. Thinking Skills										
11. Leadership Training										
12. Special Programs (e.g., Junior Great Books, Odyssey of the Mind, Future Problem Solving)										

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G. Professional Development Areas *(continued)*

To what extent and for whom have professional development practices been provided in the following areas during the last 3 years?	Frequency				Audience					
	Never	Once in the last 3 years	2-3 times in the last 3 years	More than 2-3 times in the last 3 years	All	Elem School	MS/JH	HS	G/T Teachers	Admin
13. Special Populations of Gifted Students (students with disabilities, students with limited English proficiency, economically disadvantaged students)										
14. Developing Talent in All Children										

15. If you'd like to provide additional information about any of the topics presented in your district, please describe below.

Please turn over for next page →

H. Formats

Please indicate the frequency to which the following formats have been used in the past 3 years for professional development practices in gifted education.

	Never 1	Seldom 2	Sometimes 3	Often 4
1. **Gifted education topics** are discussed during faculty meetings.				
2. **Print information** is disseminated to share information about gifted education topics.				
3. **College courses** are provided as a format for professional development practices in gifted education.				
4. **Informal, unscheduled conferences, or conversations** are used to share information about gifted education.				
5. **Presentations and workshops** are scheduled related to gifted education.				
6. **Demonstrations in the classroom** are conducted to share information about gifted education.				
7. **Peer coaching between classroom teachers and gifted education teachers** is used as a format for professional development practices in gifted education.				
8. Faculty members are sent to **out-of-district conferences and conventions** to learn about promising practices in gifted education.				
9. **Practice, feedback, and reflection** are used as professional development strategies to improve gifted education practices.				

Please turn over for next page →

I. Scheduling Options

Please indicate the frequency to which the following scheduling options for professional development in gifted education are used.

		Never 1	Seldom 2	Sometimes 3	Often 4
1.	During the **summer months**				
2.	**After school** hours				
3.	During contracted, district-wide **release days**				
4.	**During school** hours				

J. Providers

Please indicate the frequency to which the following providers conduct professional development practices in gifted education.

		Never 1	Seldom 2	Sometimes 3	Often 4
1.	**District gifted education specialists**				
2.	**District faculty members**				
3.	**District administrators**				
4.	**University consultants**				
5.	**Regional service center consultants**				
6.	**State Department consultants**				
7.	**Independent or free-lance consultants**				

Thank you for your time and help in gathering this valuable information!

Appendix B
Pilot Study of Professional Development Modules: Invitation Letter

March 27, 1997

First & Last Name
Address 1
Address 2
City, State Zip

Dear First & Last Name:

Have we got a deal for you! The National Research Center on the Gifted and Talented (NRC/GT) has developed four professional development modules to help schools address gifted education in the regular classroom. We need feedback from 16 Collaborative School Districts about the effectiveness of these modules before we share them with a national audience.

We respect your expertise and point of view and would like to ask for your help in participating in a pilot study. Your work with this action research project could be used to fulfill the requirements for your EPSY 300, Independent Study or for your EPSY 384 staff development project, if you are interested.

Strategies for modifying, differentiating, and enriching the curriculum are presented in the modules. Each module contains presenters' notes, transparencies, workshop activities, videos, and handouts. If you wish to participate as a local liaison for this study, you will conduct training with elementary staff members in your district by June 1997 using at least one of the following four professional development modules:

A. Exploring Conceptions of Giftedness and Gifted Education Strategies (Time frame: approximately 2 hours)

   Goals for Module One:

   - To discuss our own beliefs and the research related to intelligence and giftedness.
   - To identify promising practices to address gifted education in the regular classroom.
   - To identify areas for potential growth and professional development related to these practices.

B. Curricular Modification Strategies (Time frame: approximately 2-3 hours)

   Goals for Module Two:

   - To identify and categorize learning objectives.
   - To analyze and evaluate the quality and the alignment of lesson components.
   - To escalate the complexity of a learning objective.
   - To connect the topic to the knowledge within the various academic disciplines.
   - To identify authentic roles, issues, products, and resources that might be incorporated within a curriculum unit.
   - To design active and inquiry-based learning activities.

- To apply these techniques to a traditional lesson.

C. Procedures for Curriculum Differentiation (Time frame: approximately 2-3 hours)

Goals for Module Three:

- To identify or create informal procedures for detecting relevant differences among students.
- To make provisions to accommodate the most relevant differences.
- To develop procedures for creating flexible groups and individual learning activities.

D. Methods for Incorporating Enrichment Activities (Time frame: approximately 2-3 hours)

Goals for Module Four:

- To address promising practices for providing enrichment in the regular classroom.
- To design specific enrichment strategies, namely, interest centers, enrichment clusters, problem solving simulations, independent projects.

The responsibilities for the local liaison are:

1. Administer pre and post questionnaires to participating staff members.
2. Provide written feedback about the professional development modules as well as maintain a log of observations, comments, or requests for follow-up assistance.
3. Assist teachers or serve as a peer coach for those who are interested in implementing specific strategies in their classrooms.
4. Maintain phone, e-mail, or fax communication with the University of Connecticut to provide updates on the progress of the training.

The research team at the University of Connecticut will:

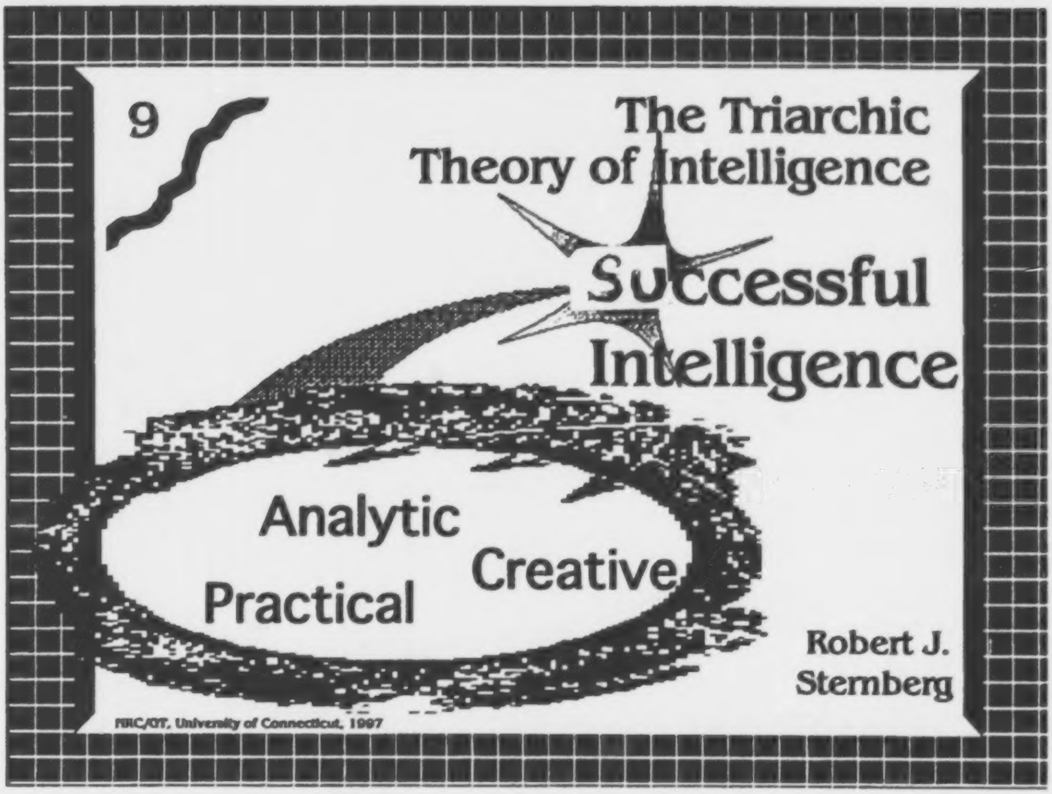
1. Provide complimentary copies of the four professional development modules.
2. Respond to questions that you or your staff have regarding the strategies discussed in the modules.
3. Prepare a summary of districts' reactions about the effectiveness of the modules.
4. Maintain confidentiality for all staff members participating in this study. (Note: no student data will be collected.)

Please share this invitation with your supervisor. We will contact you within two weeks to respond to questions and determine your interest in participating in this pilot study. We look forward to discussing the study with you. If you wish to contact us sooner, please call Deb Burns at 860-486-0616.

Sincerely,

Deborah E. Burns
Karen L. Westberg
E. Jean Gubbins
Sally M. Reis

Appendix C
Sample Slides and Notes From the Big Red Notebook



9

The Triarchic Theory of Intelligence

Successful Intelligence

Analytic
Creative
Practical

Robert J. Sternberg

NRC/GT, University of Connecticut, 1997

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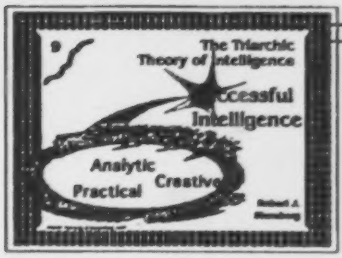


The Triarchic Theory of Intelligence

Notes to the Presenter:

Paraphrase This Information for the Participants:

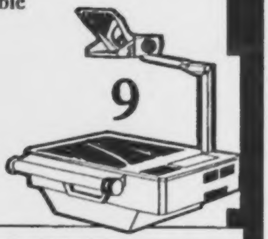
- Robert Sternberg, of Yale University, has also developed a conception of intelligence that he calls the Triarchic Theory of Intelligence. Like Gardner, Sternberg believes that intelligence is multi-faceted. The three major aspects of his model include analytic, creative, and practical intelligences.
- *Analytic* intelligence is related to one's ability to examine and evaluate data and new information. *Practical* intelligence is related to our ability to use knowledge to solve problems in a realistic and pragmatic manner. *Creative* intelligence involves an aptitude for novel and original solutions, ideas, and points of view.
- Memory, attention, and language are prerequisites for the development of these three intelligences.
- Sternberg suggests that remarkable (or "successful") performance often requires a combination of all three facets of intelligence.
- Sternberg believes that traditional "intelligence" tests measure only analytic ability.
- Sternberg believes that comprehensive instruction should address all three aspects of intelligence. He also believes students should have opportunities to spend a portion of their time working in their intellectual strength or preference areas.
- Sternberg believes that different intellectual tasks or different environments require the use of different intelligences.

Suggested Activities to Promote Audience Involvement:

If time permits, and you would like to involve the audience in a discussion of Sternberg's work, ask participants if they believe that:

- Individuals could perform poorly in some areas but develop remarkable aptitudes in other areas of intelligence.
- Certain environments encourage the use or development of one specific intelligence.
- Intelligences are inherited or nurtured.

Ask participants to consider a definition of "giftedness" from the perspective of Sternberg's Triarchic Theory of Intelligence.



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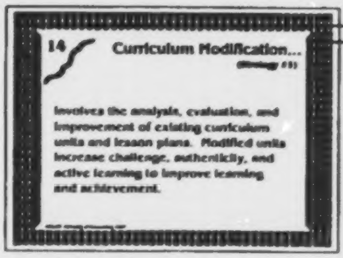
14

Curriculum Modification...

(Strategy #1)

involves the analysis, evaluation, and improvement of existing curriculum units and lesson plans. Modified units increase challenge, authenticity, and active learning to improve learning and achievement.

NRC/GT, University of Connecticut, 1997



14

Curriculum Modification...

(Strategy #1)

Involves the analysis, evaluation, and improvement of existing curriculum units and lesson plans. Modified units increase challenge, authenticity, and active learning to improve learning and achievement.

Curriculum Modification...

3-5 minutes

Notes to the Presenter:

Background Information:

- This is the first of 14 transparencies that explains techniques for curriculum modification.
- Refer back to Transparencies 2, 3, and 5 to check participants' current level of understanding, to measure progress, and to point out the goals and topic for the next segment of the presentation.

Paraphrase This Information for the Participants:

- This segment, Transparencies 14-27, is designed to provide participants with information related to gifted education in the regular classroom. One way to address gifted education is to analyze, modify, and enhance our existing lesson plans and curriculum units.
- The modification process involves two phases: a) analyzing the quality of the various instructional components in an existing lesson or unit and analyzing the ways in which the lesson's topic is connected to various academic disciplines, real world resources, and activities, and b) using the results of this analysis to enhance and improve related curriculum components, learning objectives, activities, resources, and products.
- This transparency provides a "working definition" of curriculum modification. The definition lists the three procedures (analysis, evaluation, and improvement) inherent in the curriculum modification process. It also describes the three goals for enhancing curriculum units (increase authenticity, challenge, and cognitive or active student involvement).

Suggested Activities to Promote Audience Involvement:

Consider posing the following questions:

- How might curriculum units used in a gifted education program differ from units used in general education?
- Could some gifted education curriculum units or lessons be beneficial for all students? Why?

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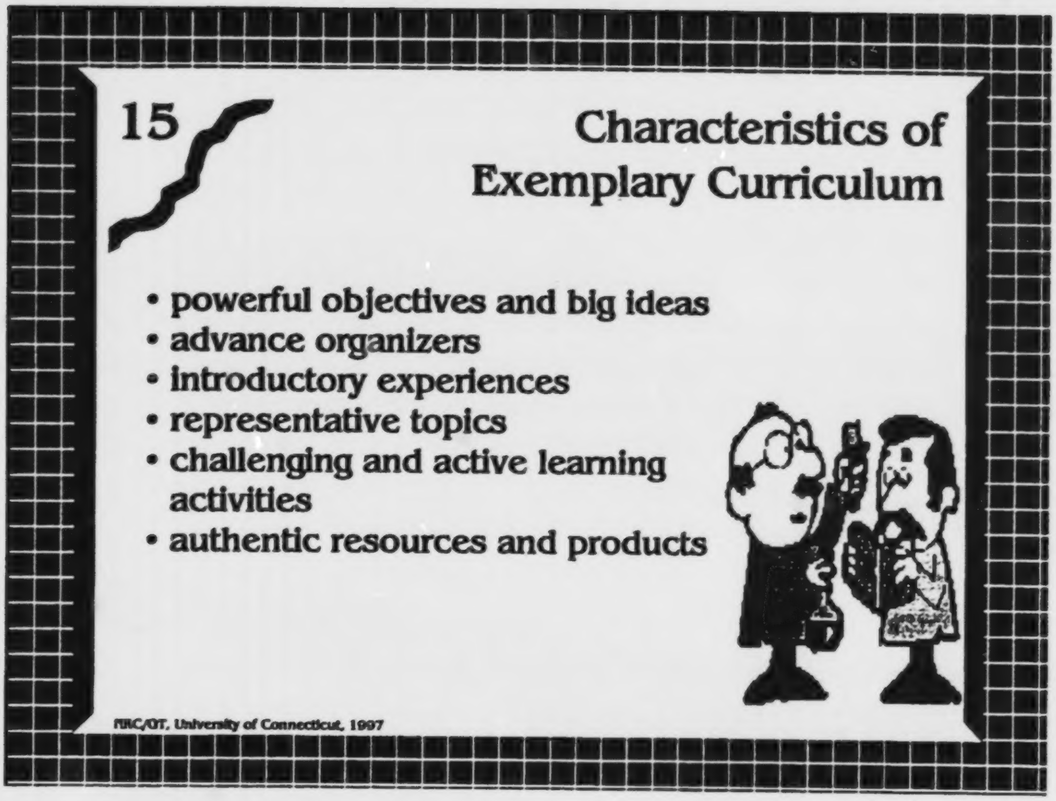
Page 14-A

- Most teachers have experience with curriculum modification. Why do teachers modify units? What dissatisfies you about some curriculum units? What might dissatisfy some parents about existing curriculum units?

After comparing respondents' answers with the transparency, ask participants:

- Do you agree that curriculum modification requires analysis and evaluation before any enhancement or improvement takes place?

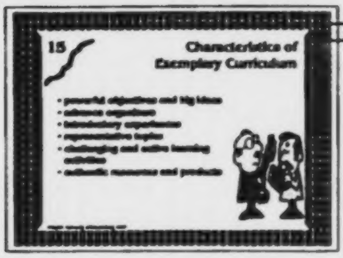
- How do you feel about the purposes for curriculum modification expressed in this overhead?



Characteristics of Exemplary Curriculum

- powerful objectives and big ideas
- advance organizers
- introductory experiences
- representative topics
- challenging and active learning activities
- authentic resources and products

NRC/GT, University of Connecticut, 1997



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Characteristics of Exemplary Curriculum

Characteristics of Exemplary Curriculum

2-3 minutes

Notes to the Presenter:

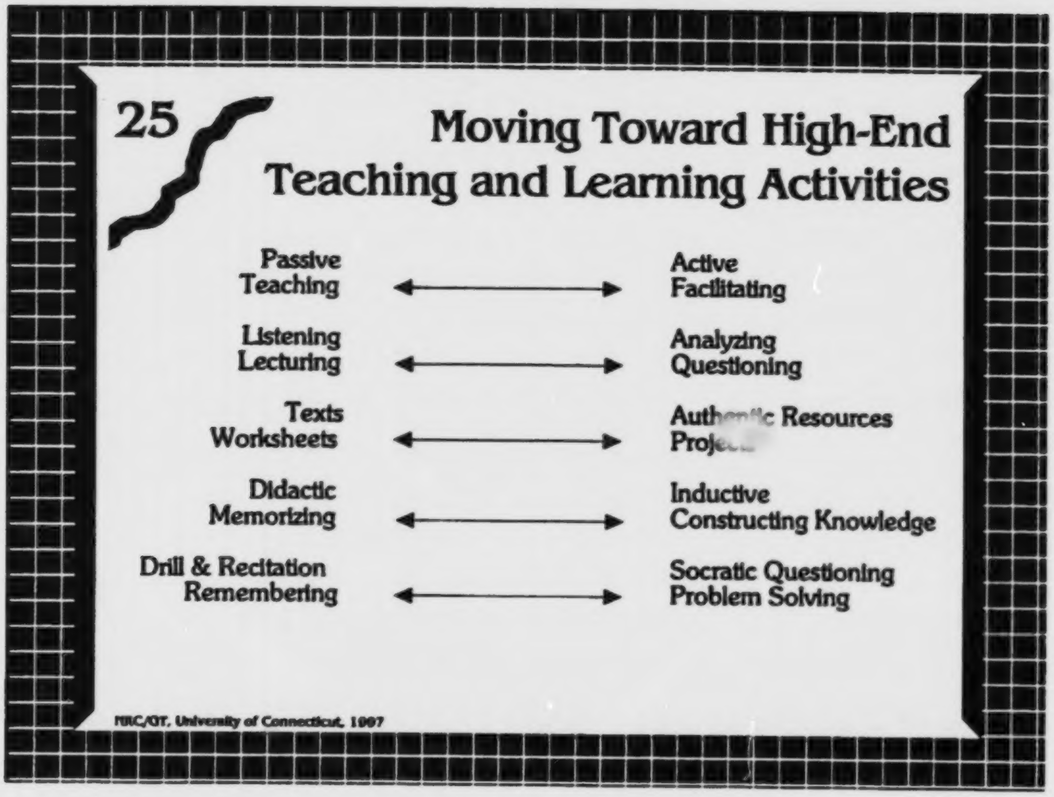
Paraphrase This Information for the Participants:

- A great deal of research has already been conducted to identify the characteristics of exemplary curriculum.
- These characteristics are as important to gifted education teachers as they are to classroom teachers.
- Not all existing units contain these features.
- Teachers need the time, the creativity, and the perseverance to modify existing units.
- The development of enhanced curriculum units is a gifted education service.

Suggested Activities to Promote Audience Involvement:

Ask:

- How would (point to one of these characteristics) affect students?
- Why is ____________ (one of the characteristics) important?
- Do all textbook units contain these features? Which are frequently missing?
- How might we resolve the problem of missing or unsatisfactory features?
- How can curriculum modification be considered a gifted education service?

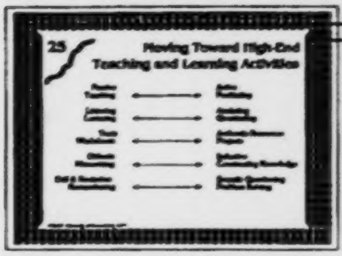


25

Moving Toward High-End Teaching and Learning Activities

Passive Teaching	↔	Active Facilitating
Listening Lecturing	↔	Analyzing Questioning
Texts Worksheets	↔	Authentic Resources Projects
Didactic Memorizing	↔	Inductive Constructing Knowledge
Drill & Recitation Remembering	↔	Socratic Questioning Problem Solving

NRC/GT, University of Connecticut, 1997



25 Moving Toward High-End Teaching and Learning Activities

Moving Toward High-End Teaching and Learning Activities

Notes to the Presenter:

Paraphrase This Information for the Participants:

- Display Transparency 16 again and say, "Now let's examine some strategies for improving the activities within a lesson or unit. Specifically, we will be examining ways to make these activities more powerful or more "high end." Specifically we are talking about the Teaching Activities and the Learning Activities in any curriculum unit."

Suggested Activities to Promote Audience Participation:

- Put Transparency 25 on the overhead projector, and ask participants:

  a) to analyze the transparency and identify the difference between the phrases and words listed on the right side and those listed on the left side.

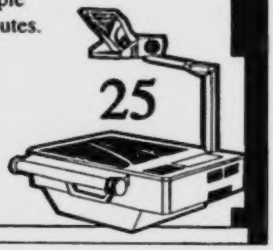
  b) to decide if they believe that all of these strategies are useful, those listed on the right and those on the left, or, are some of these strategies "bad" and others "good"?

  c) to indicate where teachers and students have traditionally spent the majority of their time and why this is so.

  d) to identify which side (the left or right) represents "high end," enhanced, challenging or authentic classroom activities.

  e) to identify the constraints that must be addressed to increase the use of "high end" activities in our classrooms.

- Ask participants to "count off" using the numbers 1-8. Ask all people with the same number to sit and work together for the next 5-7 minutes.



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Page 25-A

- Give each group of participants one of the "traditional" teaching or learning activities printed on the Creating Powerful Teaching Strategies and Creating Active Learning Strategies activity pages. The information on these worksheets is printed below:

Traditional Teaching Activities

1. Making an oral presentation
2. Organizing a lecture by a community resource
3. Asking factual questions
4. Modeling a skill or technique
5. Correcting homework
6. Watching a video
7. Demonstrating a principle
8. Giving specific directions

Traditional Learning Activities

1. Completing a worksheet
2. Answering all the questions at the end of a chapter
3. Alphabetizing spelling words
4. Reading pages in a textbook
5. Copying poems from the chalkboard
6. Memorizing dates and names
7. Learning formulas by rote
8. Using only paper and pencil

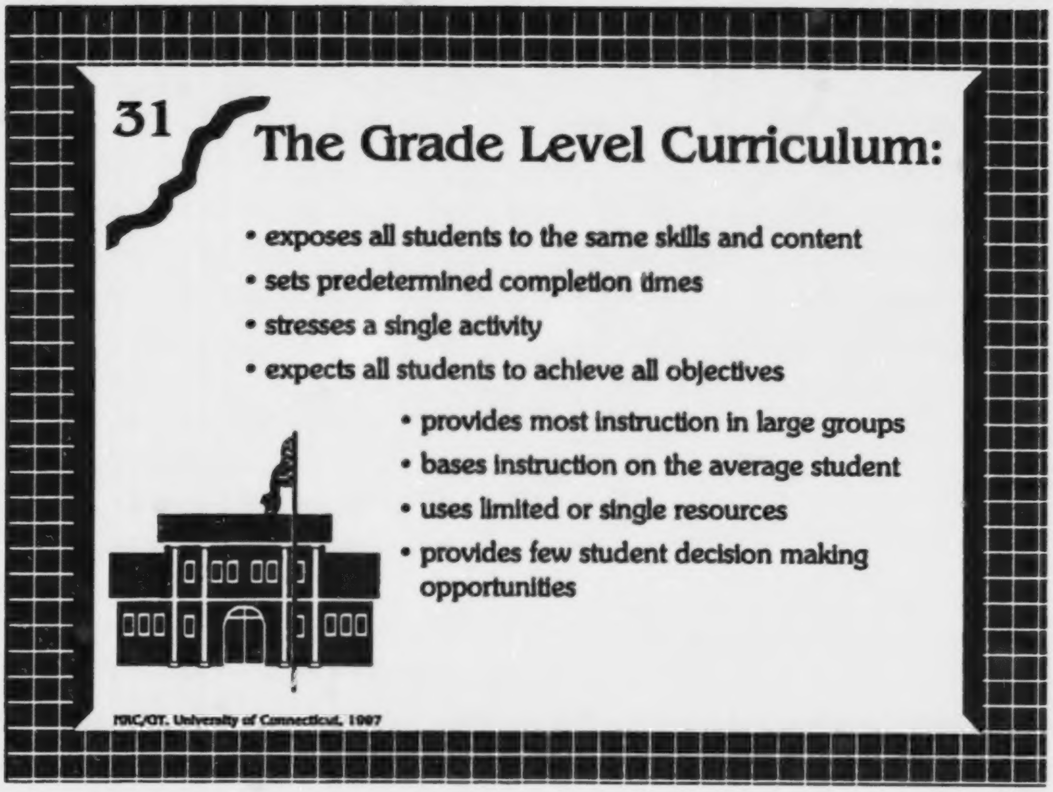
- Ask participants to discuss the various ways that these two activities might be enhanced and improved to increase motivation, challenge, cognitive level, authenticity or active learning.

- Remind participants that you are not suggesting that these activities are "bad," but that any teaching or learning activity can be improved and enhanced with enough planning and reflection opportunities.

- After they have brainstormed 5-7 enhanced activities, ask participants to select their favorites and be prepared to share with the group.

- Using a round robin technique, ask participants to take notes as you "go around the room" and solicit the best ideas from the participants. By taking notes, the other participants will have a lengthy list of possibilities that they can use later when brainstorming alone or with a partner.

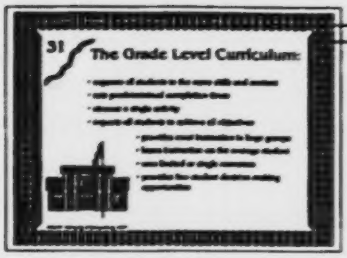
- Ask participants to discuss what they believe the effects would be if the future lesson were to reflect these suggested modifications.



The Grade Level Curriculum:

- exposes all students to the same skills and content
- sets predetermined completion times
- stresses a single activity
- expects all students to achieve all objectives
- provides most instruction in large groups
- bases instruction on the average student
- uses limited or single resources
- provides few student decision making opportunities

NRC/GT, University of Connecticut, 1997



The Grade Level Curriculum:

2-3 minutes

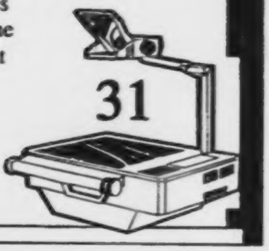
Notes to the Presenter:

Background Information:

This transparency reminds participants of the roots for grade level instruction and our historic attempts to address heterogeneity in our classrooms. We briefly trace the changes in classroom practices over the last hundred years and analyze the strengths and weaknesses inherent in these various approaches.

Paraphrase This Information for the Participants:

- Most educators recall the name of Horace Mann. A prominent New England educator during the advent of the industrial age, Mann became concerned about the impact of greater numbers of children and their families moving to cities and towns as an agricultural, rural existence gave way to an manufacturing-based economy. Although the K-8, one room school house could easily accommodate all students within several square miles, this same format created overcrowding in urban centers where 200-300 students lived in the same area that served 10-18 students in a rural region.
- Since France witnessed the same growth a few years earlier than the United States, Mann visited that country to identify the strategies the education community was using to respond to these changes. He learned that they too had originally staffed larger multi-age classrooms with 4-6 teachers to work with 200-300 students. Later, the French created age-based classrooms of 25-40 students in a school with multiple classrooms, multiple ages, and larger numbers of teachers.
- The prevailing psychology of learning suggested that age was related to most differences between students, and that by grouping students by their age, educators could reduce heterogeneity and improve learning. Mann returned to the United States and lead a movement to revamp American schools according to the same philosophy and format. The result was grade level classrooms; a format that still dominates our educational scene today.



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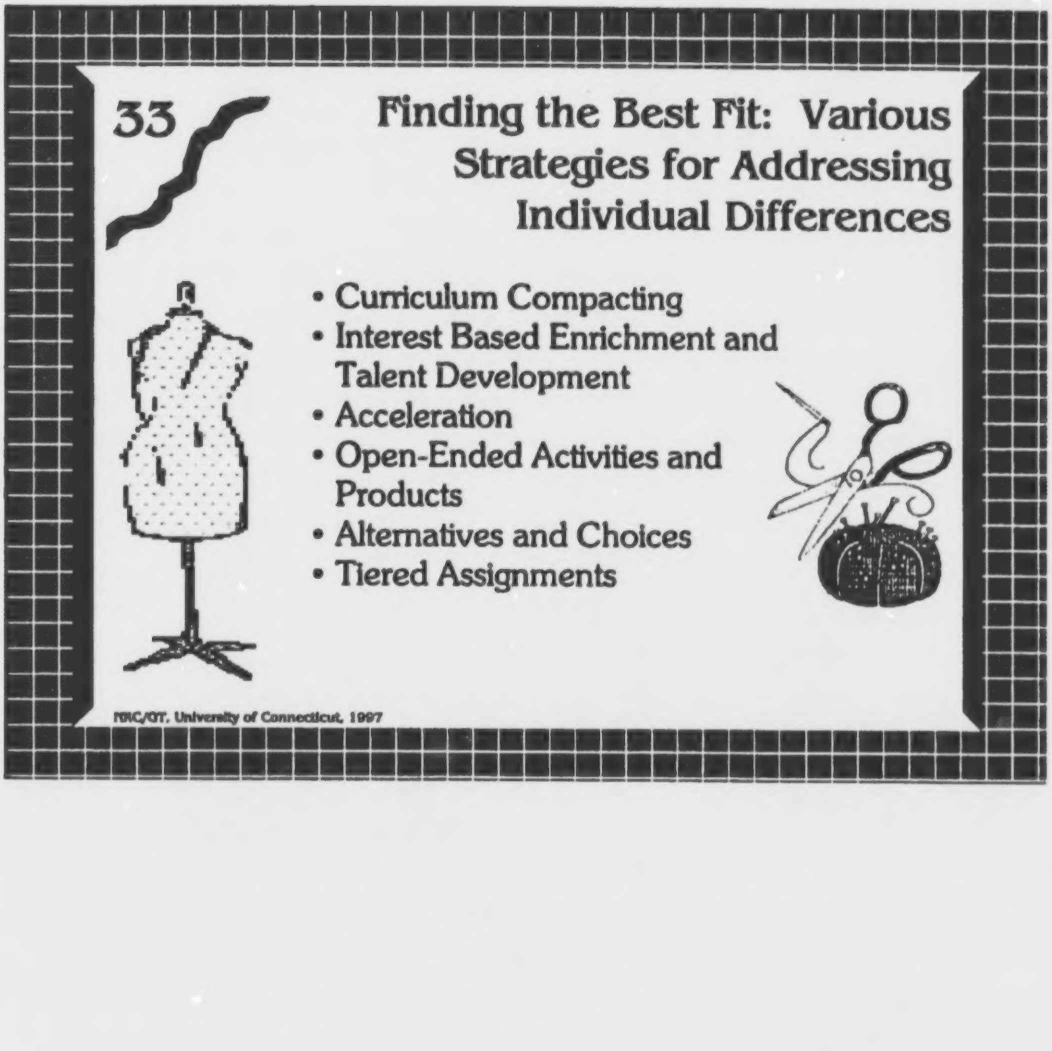
Page 31-A

- Since it was assumed that grade level classrooms vastly decreased heterogeneity, it was no longer necessary for teachers to work with individual or small groups of students, or to provide students with different textbooks or different assignments. Instead, whole class instruction, single text, and lock step pacing prevailed.
- Within forty years of Mann's first visit to France, critics of the grade level curriculum began to make their voices heard. Their experiences suggested that even when students were grouped by age, differences in learning rate, prior knowledge, motivation, and cognitive ability still prevailed. Educators in school districts around the country began to experiment with alternatives to grade level instruction. These alternatives included the well-known Joplin (MO) Plan (that grouped students for math or reading instruction across classrooms and sometimes across grade levels), ability grouping, and options to enter school early, grade skip, or graduate one or two semesters earlier than age mates.
- By the 1970s, programs like IGE (Individually Guided Education), Mastery Learning, centers, and Open Education were introduced as additional strategies to increase achievement by addressing individual differences among students.

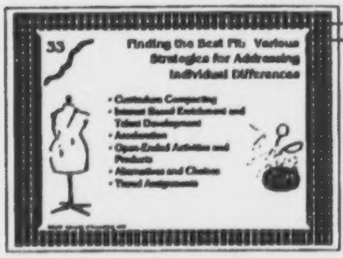


33

Finding the Best Fit: Various Strategies for Addressing Individual Differences

- Curriculum Compacting
- Interest Based Enrichment and Talent Development
- Acceleration
- Open-Ended Activities and Products
- Alternatives and Choices
- Tiered Assignments

NRC/GT, University of Connecticut, 1997



33

Finding the Best Fit: Various Strategies for Addressing Individual Differences

Finding the Best Fit: Various Strategies for Addressing Individual Differences

Notes to the Presenter:

Paraphrase This Information for the Participants:

- Despite the existence of a formal gifted education program in your school or grade level, the majority of students who are served by these kinds of programs spend the majority of their time in the regular classroom.

- Regardless of the existence of a gifted education program, classroom teachers still have an obligation to address gifted education in their own classrooms. The responsibility to serve the needs of these students extends throughout the school day and the school week.

- Although the Joplin Plan, early entrance policies, grade skipping, ability grouping, and early graduation policies are effective in addressing the needs of gifted education students, not all teachers, or all school districts support these policies and procedures.

- During this portion of the presentation we will address differentiation strategies that can be used in the regular classroom, with minimal need for outside support or interventions. These strategies include the use of compacting, interest-based enrichment, pretesting, diagnostic and developmental assessment, increased use of open-ended assignments, the use of small group alternatives and choices, and the increased use of small group learning activities.

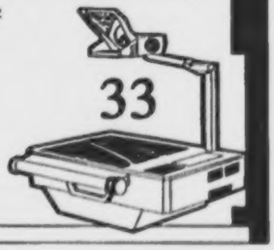
Suggested Activities to Promote Audience Participation:

Say:

Given the brief history of educational practices that we discussed earlier, and the data from the Classroom Practices survey, what makes it so difficult for us to achieve the mission statement we reviewed earlier? Why is it so hard to address individual differences in the grade level classroom?

What are the constraints and realities that prevent these practices from happening more often?

What kinds of differentiation services are realistic and plausible within the regular classroom?



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52

Tiered Activities

To Alter the Depth of a Lesson

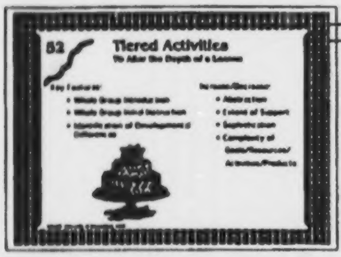
Key Features:

- Whole Group Introduction
- Whole Group Initial Instruction
- Identification of Developmental Differences

Increase/Decrease:

- Abstraction
- Extent of Support
- Sophistication
- Complexity of Goals/Resources/ Activities/Products

NRC/GT, University of Connecticut, 1997



Tiered Activities To Alter the Depth of a Lesson

Notes to the Presenter:

Paraphrase This Information for the Participants:

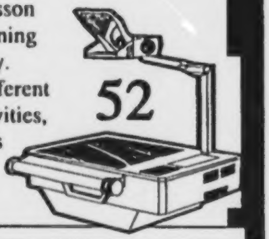
Teachers who already use open-ended questioning and assignments, as well as alternative assignments, products, and resources, may be interested in adding another dimension to their differentiation techniques. We refer to this strategy as "tiering," and it involves changes with regard to the depth of the objective, the learning activities, the resources and/or the products. Tiering may also involve the use of differentiated instruction, and the use of small group or cluster group teaching activities.

Tiering is especially appropriate when pretest analysis suggests that the differences among students can be explained by variations in their expertise, learning rate, cognitive level, or prior knowledge. Tiering assures that all students approach a common learning objective from a developmentally appropriate perspective. Tiering also allows students who "master" an objective at a superficial level to investigate more sophisticated or complex aspects of the same objective, thereby insuring a more comprehensive understanding of the learning goal.

Although tiering usually involves changes in the learning objective to accommodate two or three different levels of pretest expertise, the decision to change instruction, resources, learning activities, or products can change from objective to objective. It is not necessary to change all aspects of the lesson in order to "tier" a lesson. As in the previous examples, tiering can still be used within the context of a whole group introduction and whole group teaching activities.

Suggested Activities to Promote Audience Participation:

Use the activity page entitled Tiered Activities to Alter the Depth of a Lesson to conduct a practice activity. Provide teachers with an example of a learning objective accompanied by a large group introduction and teaching activity. Ask teachers to work in small groups to alter the lesson to include 2-3 different levels for the learning goals, the resources, the learning and teaching activities, and the products. Ask teachers to discuss when they might tier all aspects of a lesson and when they might tier just a few aspects.



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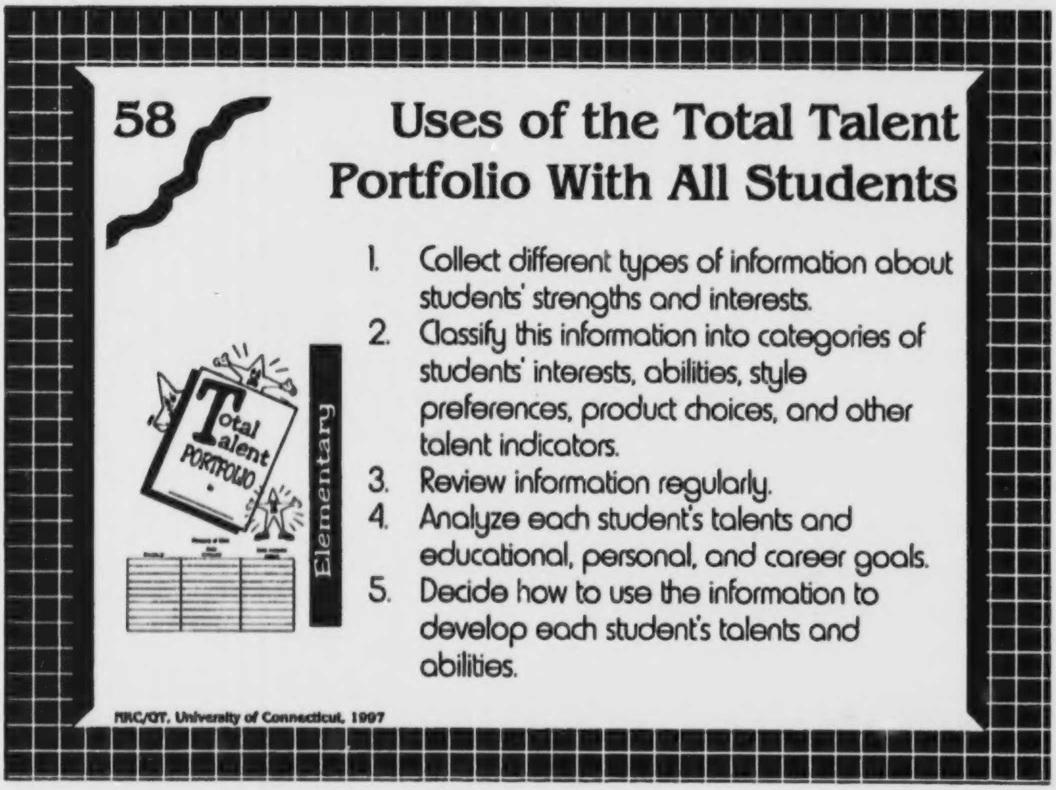
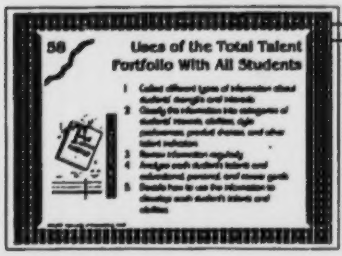

Total Talent PORTFOLIO
Elementary

58

Uses of the Total Talent Portfolio With All Students

1. Collect different types of information about students' strengths and interests.
2. Classify this information into categories of students' interests, abilities, style preferences, product choices, and other talent indicators.
3. Review information regularly.
4. Analyze each student's talents and educational, personal, and career goals.
5. Decide how to use the information to develop each student's talents and abilities.

NRC/GT, University of Connecticut, 1997



58

Uses of the Total Talent Portfolio With All Students

Uses of the Total Talent Portfolio With All Students

5 minutes

Notes to the Presenter:

Use activity pages (2-pages) entitled "If I Ran the School."

Paraphrase This Information for the Participants:

Creating a *Total Talent Portfolio (TTP)* With Your Students

The *TTP* provides a profile of a student's high-level learning experiences (enrichment clusters, curriculum compacting, Type I Enrichment, Type II Enrichment, and Type III Enrichment). This form, which can be completed by teachers or support personnel, may also contain brief statements about a student's talent development activities.

Teachers and parents can focus on children's abilities, interests, and learning style preferences as they think about and suggest recommendations to escalate each student's creative productivity and academic achievement. High-level learning options (enrichment clusters, curriculum compacting, enrichment activities) overlap with these abilities, interests, and learning style preferences. It is important to note that a wide variety of high-level learning options exist. Teachers can develop their own unique combination of enrichment and acceleration options.

The *TTP* is a qualitatively different school document that teachers, students, and parents can use to facilitate individual student growth. The *TTP* helps teachers to look at students in a new way—to see the best things in each student. "Best things" are talent indicators which manifest themselves through grades, interests, hobbies, and students' goals and co-curricular activities.

Since asking teachers to develop a *TTP* for each student requires time and training, an excellent way to start is to gather information about students' interests. To do that, teachers may administer "If I Ran the School," a simple and effective way to assess student interests. This is included as an activity page in this presentation.

(continued on next page)

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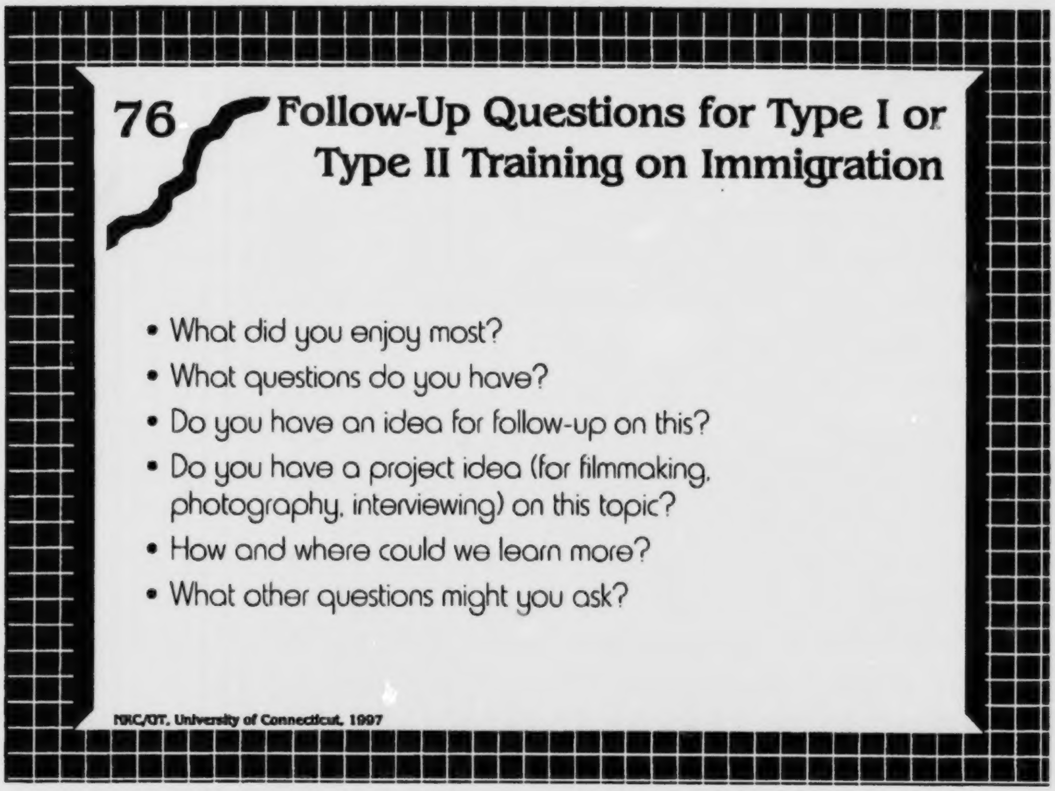
Taken together, the high-level learning options form the school's continuum of special services. Students' opportunities to participate in escalating levels of enrichment and accelerative learning opportunities are the consummate criteria for determining the success of a school.

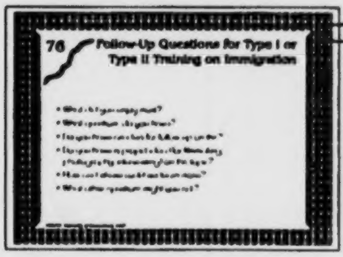


76

Follow-Up Questions for Type I or Type II Training on Immigration

- What did you enjoy most?
- What questions do you have?
- Do you have an idea for follow-up on this?
- Do you have a project idea (for filmmaking, photography, interviewing) on this topic?
- How and where could we learn more?
- What other questions might you ask?

NRC/GT, University of Connecticut, 1997



76 Follow-Up Questions for Type I or Type II Training on Immigration

Follow-Up Questions for Type I or Type II Training on Immigration

Notes to the Presenter:

Paraphrase This Information for the Participants:

Maximizing Payoff of Type I or Type II Enrichment

One of the primary goals of Type I Enrichment is to stimulate new interests that might lead to follow-up by students who share a common interest. Teachers can help maximize this type of payoff by conducting student discussions or debriefings following each event. These questions on the transparency are examples of questions which can be asked.

Whenever possible, a Type I presenter should be invited to meet with students who may be interested in pursuing a Type III investigation. This type of mentor role can be extremely motivating and exciting for students. If the presenter is not available, the follow-up discussions can be presented by classroom teachers and/or the enrichment specialist who attended the session. Discussions should be directed toward encouraging students to pursue Type III investigations. The discussions might also lead to more advanced Type I presentations on the same topic or result in the need for Type II training for students who want to go into more depth. Type I's should be viewed as potential beginning points for any students who might want to pursue a new interest through a Type III study or through advanced Type II training opportunities. During these discussions, presenters and teachers should watch for students with high levels of interest or task commitment. These are often the students who may be capable of initiating advanced follow-up.

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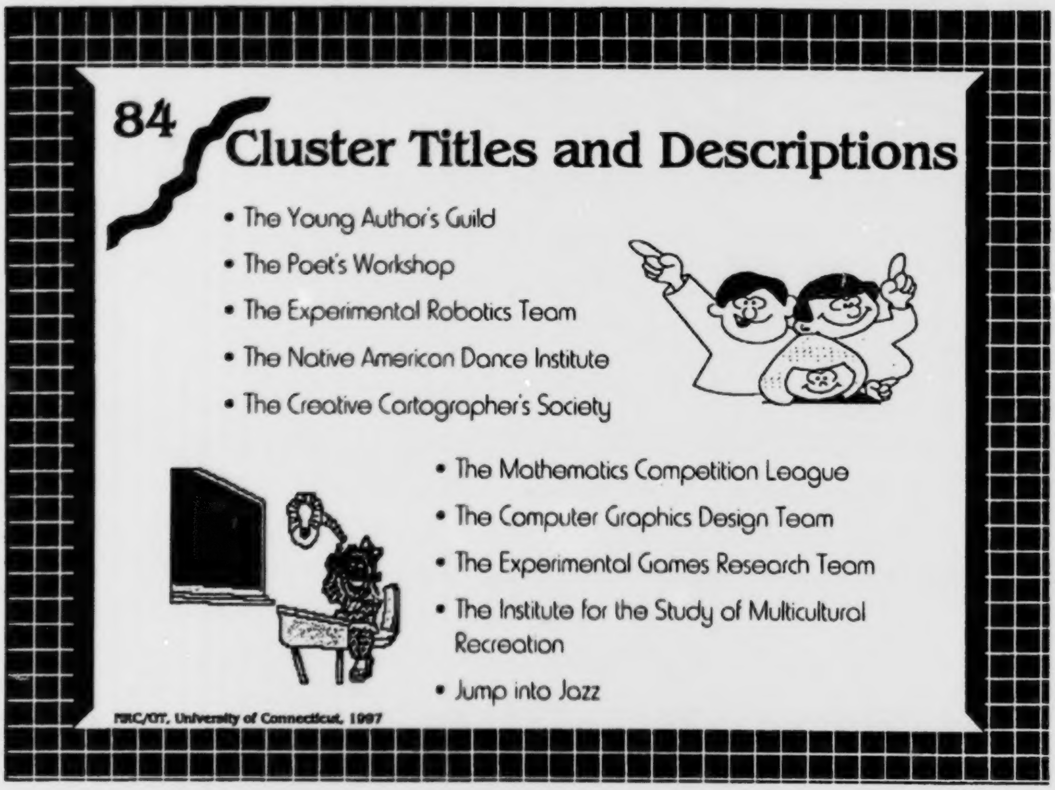

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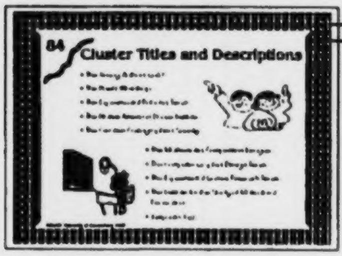
Cluster Titles and Descriptions

- The Young Author's Guild
- The Poet's Workshop
- The Experimental Robotics Team
- The Native American Dance Institute
- The Creative Cartographer's Society
- The Mathematics Competition League
- The Computer Graphics Design Team
- The Experimental Games Research Team
- The Institute for the Study of Multicultural Recreation
- Jump into Jazz

NRC/GT, University of Connecticut, 1997



Cluster Titles and Descriptions

10-15 minutes

Notes to the Presenter:

Direct the participants to their activity page entitled Sample Cluster Descriptions.

Paraphrase This Information for the Participants:

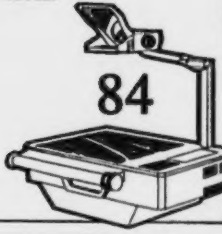
- This transparency includes several sample cluster titles. Direct the participants to their activity page entitled Sample Cluster Descriptions. The goal of this activity is to have participants brainstorm a cluster title and write a cluster description.

Suggested Activities to Promote Audience Participation:

- Have participants turn to the activity page with cluster descriptions and then start the activity. Participants should think of a title for a cluster they may want to facilitate themselves and write a cluster description.

- Remember to use this activity as a way to help participants realize the difference between a cluster and a mini-course. The differences between enrichment clusters and mini-courses should be emphasized. Clusters are not mini-courses or clubs. They are opportunities for adults and students to pursue mutual areas of interest. In a mini-course, the content and products are predetermined, whereas the content in a cluster will depend upon what individual and group members decide they want to pursue in the cluster. Clusters should be open-ended and enable students to clearly identify which types of services, products, and activities can be pursued. Cluster descriptions should clearly indicate that many different options exist about what will occur in a cluster.

- Have participants read their cluster title and description aloud to share ideas.



Appendix D
Research Study Invitation Letter

October 15, 1997

First & Last Name
Address 1
Address 2
City, State Zip

Dear CSD Contact Person:

During the next two years, the University of Connecticut site of The National Research Center on the Gifted and Talented (NRC/GT) will be investigating various methods of providing professional development training in gifted education practices to classroom teachers who, in turn, will use gifted education pedagogy in their classrooms. This letter explains the upcoming experimental study and describes the application procedures for districts that would like to be involved. Local district liaisons will implement a professional development module with a minimum of five teachers in each district. The module, developed by the NRC/GT, focuses on strategies for differentiating curriculum and instruction in elementary and middle school classrooms. Participating districts will be involved in one of two treatment plans, one called the "Local Trainer" and the other called "NRC/GT Trains the Local Trainers." A description of the two plans and the application procedure are enclosed with this letter.

We believe there are several benefits for those who participate in the Professional Development Study. First, this study provides an opportunity for classroom teachers to learn techniques for addressing the individual interests, learning styles, and abilities of students. Second, as an outcome of the study, participating districts will have local trainers who can provide additional training in differentiating curriculum and instruction. In addition, participants will have an opportunity, upon completion of the study, to write articles about their experiences for NRC/GT publications (e.g., NRC/GT Newsletter). And as an extra incentive, participating districts will be included in a lottery drawing for a free registration to Confratute, The Summer Institute on Enrichment Teaching and Learning at the University of Connecticut.

If, after reading the attached descriptions of the two treatment plans, you are interested in participating, please complete the enclosed application form by November 7th, 1997. Note, your Superintendent's approval and signature are necessary for participation in the project. Please forward the enclosed copy of materials in this letter to your Superintendent. If you have questions about this study, please call Carol Tieso or Sue Dinnocenti, NRC/GT Research Assistants, at 860-486-0617.

Thank you for considering this opportunity.

Sincerely,

Deb E. Burns
E. Jean Gubbins
Sally M. Reis
Karen L. Westberg

Enc.

Treatment Number 1: "Local Trainer"

Overview:

A local g/t teacher or g/t coordinator will present a professional development module to interested classroom teachers on differentiation strategies that involves 3-4 hours of training. After receiving the training from the local liaison, participating teachers will form groups (by strategy or grade level) to implement new practices in their classrooms. In addition to providing collegial assistance/feedback to each other, the teachers in some districts will receive coaching assistance from the local liaison. Teachers will document their use of the strategies and provide a portfolio record of their efforts, including the impact on students.

Participation Requirements:

To provide balance, diversity and representativeness, 40 districts will be selected for participation whose Superintendent, school principal(s), and interested teachers agree to the following:

#1. Districts must have a local liaison, a gifted education specialist or an experienced classroom teacher with g/t responsibilities, who has some flexibility in his/her schedule which will allow time to provide the training to teachers before the end of February 1998 as well as observe and assist teachers through May 1999.

#2. Districts must have at least 5 teachers within one elementary or middle school who willingly agree to participate in this study for two years by attending 3-4 hours of training, implementing at least one new differentiation practice in their classrooms, and providing requested documentation. In addition, half of the participating districts will be randomly assigned to experimental groups that will use collaborative small group planning and discussion practices.

#3. Districts must provide conditions which will allow the participating 5 or more teachers to receive the training (release days, after school, etc.) between January and February, 1998.

#4. Districts must be willing to provide demographic data as well as data from nonparticipating teachers who will serve as control subjects. In addition, participating teachers must provide preliminary preassessment information and documentation about their use of the new practice(s).

#5. Districts must be willing to accept potential on-site visits by NRC/GT researchers to participating and nonparticipating teachers' classrooms.

#6. The local liaisons must collaborate with the participating teachers on at least a semi-monthly basis and communicate with the NRC/GT staff on a monthly basis.

Treatment Number 2: "NRC/GT Trains Local Trainers"

Overview:

NRC/GT staff will provide 2 days training using a professional development module to selected liaisons who travel to Connecticut on December 5 and 6, 1997. Information on differentiation and enrichment strategies as well as training on how to conduct effective staff development will be included in the training. This treatment plan will be limited to liaisons who have gifted education, classroom teaching, and some staff development experience. After receiving the training at the Sheraton Hotel, which is located at the Bradley International Airport in Windsor Locks, Connecticut, the liaisons will provide training to interested teachers within their districts and may also be asked to create collaborative coaching groups (by strategy or grade level) for implementing new practices. Classroom teachers will document their use of the strategies and provide data regarding the impact on students.

Participation Requirements:

While districts throughout the country are being invited to participate, districts are responsible for any expenses associated with traveling to the Sheraton Hotel for the training (mileage or airfare, lodging near the airport which ranges from $59 to $100 per night, and some meals); however, all instructional materials, lunches, and snacks will be provided. To achieve balance, diversity, and representativeness in the sample, 20-25 districts will be selected whose Superintendent, school principal(s), and interested teachers agree to the following:

#1. Districts must have a local liaison willing to receive 2 days training from the NRC/GT staff on December 5th and 6th. This individual must have a flexible schedule which will allow time to provide training to teachers in his/her district before the end of February 1998 as well as spend time observing and assisting in teachers' classrooms for two years.

#2. Districts must have at least 5 teachers within one elementary or middle school willing to participate in this study for two years by attending the local liaison's training (3-4 hours each year), implementing at least one new differentiation practice in their classrooms, and providing requested documentation. In addition, half of the participating districts will be randomly assigned to experimental groups that will use collaborative small group planning and discussion practices (an additional 3-4 hours each year).

#3. Districts must provide conditions which will allow these 5 or more participating classroom teachers to receive this training (release days, after school, etc.) between January and February, 1998, from the local liaison.

#4. Districts must be willing to provide demographic information as well as data from participating and nonparticipating teachers who will serve as control subjects. In addition, participating teachers must provide preliminary preassessment information and documentation which support their implementation of the practice(s).

#5. Districts must be willing to accept potential on-site visits by the NRC/GT staff to participating and nonparticipating teachers' classrooms.

#6. Local liaisons must maintain monthly communication (telephone or email) with the NRC/GT staff as well as semi-monthly contact with participating teachers.

Application for Participation in the 1997-1999 NRC/GT Study on Professional Development Practices

(CHECK ONE)

Treatment Plan #1: "Local Trainer" ______

Treatment Plan #2: "NRC/GT Trains Local Trainers" ______

Willing to Participate in Either Plan #1 or #2 ______

District Name: ______________________________

District Address: ______________________________

____

Name of Superintendent: ______________________________

Name of CSD Contact Person: ______________________________

Section to be Completed by the Local Liaison

Name of Local Liaison for the Professional Development Study:

____

Description of the Local Liaison's Classroom Teaching, G/T, and Staff ______

Development Experience: ______________________________

____

____

Local Liaison's Phone No.: ______________________________

Local Liaison's E-Mail Address: ______________________________

Local Liaison's School Address: ______________________________

____

____

Section to be Completed by the Superintendent and Building Principal(s)

As the administrators in the school district, we agree to support the above named local liaison's training and collaborative assistance to ______ *(insert number)* classroom teachers in ______________________________ *(insert name)* school(s) over the next two years.

We will also support the classroom teachers, named below, who willingly indicated their interest in this study. We agree to provide conditions which will allow them to receive the training. The district will provide demographic, questionnaire, and interview data as well as permit NRC/GT researchers to conduct unobtrusive observations, if requested, in teachers' classrooms. We understand that these data will be held confidential and that the NRC/GT will maintain the district's anonymity.

Names and Phone Nos. of the Teachers Who Agreed to Participate in the Training and Implementation:

Names	**Phone Nos.**

School Principals' Signature(s): ______________________________

____

Superintendent's Signature: ______________________________

Date: ____________

Return by 11/7/97 via fax to Attn: Carol Tieso, 860/486-2900, or mail to The National Research Center on the Gifted and Talented, University of Connecticut, 362 Fairfield Road, Box U-7, Storrs, CT 06269-2007

Appendix E
Schedule of Assessment

Extending Gifted Education Pedagogy to Regular Classrooms

Schedule of Assessments

Assessment	Who	When
Assumptions Questionnaire	Liaisons	Before Reading the Module Notebook
Background Questionnaire	Liaisons	Before Reading the Module Notebook
Liaisons' Log	Liaisons	1/98 - 5/99
Teacher Questionnaire (w/Class. Prac.)	Teachers: Experimental & Control	1/98 (before initial training), 5/98, 9/98, 5/99
Assumptions/Stages of Involvement	Teachers: Experimental	1/98 (before initial training), 5/98, 9/98, 5/99
Implementation Strategies Questionnaire	Teachers: Experimental	2/98 (after training), 5/98, 9/98, 5/99
Teachers' Portfolio	Teachers: Experimental	2/98 - 5/99
My Class Activities Questionnaire	Students: Experimental & Control (gr. 3-6)	9/98, 5/99

Appendix F
Liaison Questionnaire

12/97

Liaison Questionnaire

"Extending Gifted Education Pedagogy to Regular Classroom" Research Study
The National Research Center on the Gifted and Talented

NRC G/T

Name ____

School District ____

I. Liaison Information
Please check the box that describes you.

1. Gender ☐ Male ☐ Female

2. Ethnicity

   ☐ Hispanic-American
   ☐ Caucasian-American
   ☐ African-American
   ☐ Asian-American/Pacific Islander
   ☐ Native-American
   ☐ Other (____________)

3. Years of teaching experience ______________

4. Highest Degree Earned

   ☐ BA/BS
   ☐ Ph.D./Ed.D.
   ☐ MA/MS
   ☐ Professional Diploma
   ☐ Sixth year/Ed. Spec.
   ☐ Other (____________)

5. Training in teaching of gifted/talented
   (Check all that apply)

   ☐ None
   ☐ Course(s) at college/university
   ☐ District inservice
   ☐ Educational degree in area
   ☐ Workshop outside district
   ☐ Teaching experiences and professional reading

6. Job description (Please write a brief description of your position in the school district, including the grade level of the students with whom you work or the teachers you supervise.)

-page 1 of 2-

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12/97

II. School and District Information

Please answer the following questions about your district.

1. Using the scale below, approximately what percentage of students in *your school* or *school district* belong to each of the following ethnic groups?
   1 = 0%, 2 = 1% to 10%, 3 = 11% to 25%, 4 = 26% to 50%, 5 = 51% or more, 6 = Don't Know

   ____ African-American
   ____ Asian-American/Pacific Islander
   ____ Hispanic-American
   ____ Native-American
   ____ Caucasian-American
   ____ Other

2. Has a formal definition of giftedness been adopted by your district?

   ☐ Yes ☐ No ☐ Don't Know

3. What is the lowest grade level for which there is a formal gifted program in your district? ________________

4. Does your district have a policy regarding the acceleration of the regular curriculum for high ability students?

   ☐ Yes ☐ No ☐ Don't Know

   (If yes, which of the following apply?)
   ☐ Teachers are encouraged to accelerate students into the next level or the next academic grade.
   ☐ Teachers are encouraged to provide higher level or enriched content material in their classrooms, but are not permitted to accelerate students into the next level or academic grade.
   ☐ Teachers are not allowed to provide advanced level curriculum for high ability students.
   ☐ Other (Specify ____)

5. Does your school district employ a coordinator of programs for the gifted?

   ☐ Yes ☐ No ☐ Don't Know

6. Is there a full-time teacher of the gifted in your school building?

   ☐ Yes ☐ No ☐ Don't Know

7. Is there a part-time teacher of the gifted in your school building?

   ☐ Yes ☐ No ☐ Don't Know

8. Do students in your school building participate in a gifted program in which they are transported to a different school or site?

   ☐ Yes ☐ No ☐ Don't Know

9. Do students in your school go to a resource room (pull-out program) for instruction provided by a teacher of the gifted?

   ☐ Yes ☐ No ☐ Don't Know

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Appendix G
Teacher Questionnaire With Classroom Practices

Jan./Feb. 1998

Teacher Questionnaire

"Extending Gifted Education Pedagogy to Regular Classroom" Research Study
The National Research Center on the Gifted and Talented

NRC
G/T

Name ____

School District ______________________________________

I. Teacher Information

Please check the box that describes you.

1. Gender ☐ Male ☐ Female

2. Ethnicity

☐ Hispanic-American	☐ African-American	☐ Native-American
☐ Caucasian-American	☐ Asian-American/Pacific Islander	☐ Other (____________)

3. Years of teaching experience ______________

4. Highest Degree Earned

☐ BA/BS	☐ MA/MS	☐ Sixth year/Ed. Spec.
☐ Ph.D./Ed.D.	☐ Professional Diploma	☐ Other (____________)

5. Training in teaching of gifted/talented
(Check all that apply)

☐ None	☐ District inservice	☐ Workshop outside district
☐ Course(s) at college/university	☐ Educational degree in area	☐ Teaching experiences and professional reading

6. Elementary grade level now teaching ____________ or,
Middle school content area(s) now teaching ____________

II. School and District Information

Please answer the following questions about your school.

1. Using the scale below, approximately what percentage of students in *your school* belong to each of the following ethnic groups?
1 = 0%, 2 = 1% to 10%, 3 = 11% to 25%, 4 = 26% to 50%, 5 = 51% or more, 6 = Don't Know

___ African-American
___ Asian-American/Pacific Islander
___ Hispanic-American
___ Native-American
___ Caucasian-American
___ Other

2. Has a formal definition of giftedness been adopted by your district?

   ☐ Yes ☐ No ☐ Don't Know

3. Is there a full-time teacher of the gifted in your school building?

   ☐ Yes ☐ No ☐ Don't Know

4. Is there a part-time teacher of the gifted in your school building?

   ☐ Yes ☐ No ☐ Don't Know

5. Do students in your school building participate in a gifted program in which they are transported to a different school or site?

   ☐ Yes ☐ No ☐ Don't Know

6. Do students in your school go to a resource room (pull-out program) for instruction provided by a teacher of the gifted?

   ☐ Yes ☐ No ☐ Don't Know

III. Classroom Issues

Please answer the questions below regarding issues in your classroom.

1. Which of the following best describes the type of class you teach?

   ☐ Intact of self-contained class (i.e., the same students all day)
   ☐ Departmentalized arrangement (i.e., teach one or more content areas to different classes)

2. If you teach in a regular classroom, please go to question 3 and answer the remaining questions in this section for that class. If you teach in a departmentalized arrangement, please select one (1) content area class and answer the remaining questions in this section based on that class. Please indicate which content area class you have selected.

   ☐ Science
   ☐ Math
   ☐ Social Studies
   ☐ Reading
   ☐ Language Arts
   ☐ Art
   ☐ Other (Specify ____________________________)

3. What is the enrollment of your class by gender? (Give number)

   ____ Boys ____ Girls

4. Indicate the number of limited English proficient students in your classroom. ______________

5. Indicate the number of students in your class within each of the following groups.

   ____ Visual Impairments
   ____ Hearing Impairments
   ____ Physical Handicapping Conditions (Muscle Impairment)
   ____ Emotional/Behavioral Disorders
   ____ Learning Disabilities
   ____ Other Health Impairments (Specify ____________________)
   ____ Other (Specify ________________________)

6. What is the number of students in your class within each of the following ethnic groups? (Give number)

____ African-American
____ Asian-American/Pacific Islander
____ Hispanic-American
____ Native-American
____ Caucasian-American
____ Other

7. Briefly estimate the achievement level of the students in your class. You do not have to rely on specific achievement scores. Instead, use your judgment based on observation of students' performance in your class this year.

____ Number of students 3 or more levels above grade level
____ Number of students 2 levels above grade level
____ Number of students within 1 level above or below grade level
____ Number of students 2 levels below grade level
____ Number of students 3 levels below grade level

Jan./Feb. 1998

IV. Classroom Practices

This section is designed to provide information about the instructional strategies and approaches you use in your teaching. It is very important that the answers you provide reflect actual practices. Please be assured that your individual responses will be held in the strictest confidence.

Above you told us whether you teach in a regular classroom or teach specific subject(s) (i.e., departmentalized arrangement). If you teach an intact class, please respond to the following items for that class. If you teach in a departmentalized arrangement, please respond to the following items using the same content class you selected earlier as your point of reference. PLEASE DO NOT CHANGE CLASSES.

Please read the directions below, check one of the boxes and proceed as directed:

☐ 1 If you have students in your class formally identified as gifted by your district, **check box one (1) and respond to items 1-39 for Average in the left hand column AND Gifted students in the right hand column.**

☐ 2 If you do not have students in your class formally identified as gifted by your district but **have students you believe are gifted, check box two (2) and respond to items 1-39 for Average AND Gifted students.**

☐ 3 If you have neither **students formally identified by the district as gifted nor students you believe are gifted, check box three (3) and respond to items 1-39 for Average students only in the left hand column.**

Please use the following response scale based on the academic year to indicate what actually occurs in your classroom. Circle the most appropriate response.

Response Scale
0 - Never
1 - Once a month, or less frequently
2 - A few times a month
3 - A few times a week
4 - Daily
5 - More than once a day

Average Students		Gifted Students
0 1 2 3 4 5	1. Use basic skills worksheets	0 1 2 3 4 5
0 1 2 3 4 5	2. Use enrichment worksheets	0 1 2 3 4 5
0 1 2 3 4 5	3. Assign reading of more advanced level work	0 1 2 3 4 5
0 1 2 3 4 5	4. Use self-directed instructional kits	0 1 2 3 4 5
0 1 2 3 4 5	5. Assign reports	0 1 2 3 4 5
0 1 2 3 4 5	6. Assign projects or other work requiring extended time for students to complete	0 1 2 3 4 5
0 1 2 3 4 5	7. Assign book reports	0 1 2 3 4 5
0 1 2 3 4 5	8. Use activities such as puzzles or word searches	0 1 2 3 4 5
0 1 2 3 4 5	9. Give creative or expository writing assignments on topics selected by the teachers	0 1 2 3 4 5
0 1 2 3 4 5	10. Give creative or expository writing assignments on topics selected by the students	0 1 2 3 4 5

Response Scale
0 - Never
1 - Once a month, or less frequently
2 - A few times a month
3 - A few times a week
4 - Daily
5 - More than once a day

Average Students		Gifted Students
0 1 2 3 4 5	11. Make time available for students to pursue self-selected interests	0 1 2 3 4 5
0 1 2 3 4 5	12. Use pretests to determine if students have mastered the material covered in a particular unit or content area	0 1 2 3 4 5
0 1 2 3 4 5	13. Eliminate curricular material that students have mastered	0 1 2 3 4 5
0 1 2 3 4 5	14. Repeat instructions on the coverage of the difficult concepts for some students	0 1 2 3 4 5
0 1 2 3 4 5	15. Substitute different assignments for students who have mastered regular classroom work	0 1 2 3 4 5
0 1 2 3 4 5	16. Modify the instructional format for students who learn better using an alternative approach	0 1 2 3 4 5
0 1 2 3 4 5	17. Encourage students to move around the classroom to work in various locations	0 1 2 3 4 5
0 1 2 3 4 5	18. Allow students to leave the classroom to work in another location, such as the media center or computer lab	0 1 2 3 4 5
0 1 2 3 4 5	19. Assign different homework based on student ability	0 1 2 3 4 5
0 1 2 3 4 5	20. Use learning centers to reinforce basic skills	0 1 2 3 4 5
0 1 2 3 4 5	21. Use enrichment centers	0 1 2 3 4 5
0 1 2 3 4 5	22. Teach thinking skills in the regular curriculum	0 1 2 3 4 5
0 1 2 3 4 5	23. Teach a unit on thinking skills, such as critical thinking or creative problem solving	0 1 2 3 4 5
0 1 2 3 4 5	24. Participate in a competitive program focusing on thinking skills/problem solving, such as Future Problem Solving, Odyssey of Mind	0 1 2 3 4 5
0 1 2 3 4 5	25. Use contracts or management plans to help students organize their independent study projects	0 1 2 3 4 5
0 1 2 3 4 5	26. Provide time within the school day for students to work on their independent study projects	0 1 2 3 4 5
0 1 2 3 4 5	27. Allow students within your classroom to work from a higher grade level textbook	0 1 2 3 4 5
0 1 2 3 4 5	28. Provide a different curricular experience by using a more advanced curriculum unit on a teacher-selected topic	0 1 2 3 4 5

Response Scale
0 - Never
1 - Once a month, or less frequently
2 - A few times a month
3 - A few times a week
4 - Daily
5 - More than once a day

Average Students							Gifted Students					
0	1	2	3	4	5	29. Group students by ability across classrooms at the same grade level	0	1	2	3	4	5
0	1	2	3	4	5	30. Send students to a higher grade level for specific subject area instruction	0	1	2	3	4	5
0	1	2	3	4	5	31. Establish interest groups which enable students to pursue individual or small group projects	0	1	2	3	4	5
0	1	2	3	4	5	32. Consider students' opinion in allocating time for various subjects within your classroom	0	1	2	3	4	5
0	1	2	3	4	5	33. Provide opportunities for students to use programmed or self-instructional materials at their own pace	0	1	2	3	4	5
0	1	2	3	4	5	34. Give assignments that encourage students to organize their own work schedule to complete a long range project	0	1	2	3	4	5
0	1	2	3	4	5	35. Provide questions that encourage reasoning and logical thinking	0	1	2	3	4	5
0	1	2	3	4	5	36. Ask open-ended questions	0	1	2	3	4	5
0	1	2	3	4	5	37. Encourage students to ask higher-level questions	0	1	2	3	4	5
0	1	2	3	4	5	38. Encourage student participation in discussions	0	1	2	3	4	5
0	1	2	3	4	5	39. Use computers	0	1	2	3	4	5

Appendix H
Liaison Logs

Liaison Log: Section I

Name: ______________________ **School District:** ____________________

City: ______________________________ **State:** ____________________

Please respond to these statements after the training and return to the NRC/GT.

1. Describe how you presented the material in the Professional Development Module to the teachers (number of sessions, setting, time, administrators' involvement, etc.).

2. Describe the teachers' initial reactions after the strategies were introduced.

3. Describe your reactions after you presented the material to teachers.

Liaison Log: Section II

Name: ______________________ **School District:** ____________________

City: ______________________________ **State:** _____________________

Please respond to these statements while teachers are implementing the strategies. You may want to make notes throughout March to May and summarize the information at the end of April.

---

1. Describe the types of support that you have been providing to teachers (the topics, the ways in which you helped them or the ways in which they helped each other, etc.).

2. Did you help teachers determine documentation formats? Please describe the assistance you provided.

Liaison Log: Section II

Name: ______________________ **School District:** ____________________

City: ______________________________ **State:** ______________________

3. List and explain how each teacher has been implementing the modification/ differentiation/enrichment strategies (attach additional sheets as necessary).

For example:

Teacher's name: John Smith

Strategies: John gave his entire 4th grade class a pretest on an upcoming unit on maps and globes. Six students demonstrated sufficient knowledge of the concepts and skills (e.g., longitude, latitude, map projections). Because these students were interested in maps, John gave them the opportunity to work on a group project—making a map of the planet Mars. To do this, they downloaded pictures and information from the NASA Web site, etc. They made maps of Mars in different media and also used several map projection techniques. The completed maps were made available to teachers who could use them in their classes.

Liaison: Please return this information by May 1, 1998

Liaison Log: Section III

Name: ______________________ **School District:** ____________________

City: ______________________________ **State:** _____________________

Please respond to these statements after teachers have been implementing the strategies for at least three months (by June 1, 1998).

---

1. What was most difficult for teachers when they were implementing the strategies?

2. What suggestions do you have to improve the successful implementation of the modification/differentiation/enrichment strategies in this module?

Liaison: Please return this information by June 1, 1998

Year 2—Fall '98 Update

Liaison Log: Section I

Name: ______________________ **School District:** ____________________

City: ______________________________ **State:** ____________________

Please respond to these statements while teachers are implementing the strategies. Make notes throughout September to December and return to us in December.

1. Describe the types of support that you have been providing to teachers (the topics, the ways in which you helped them or the ways in which they helped each other, etc.).

2. Did you help teachers determine documentation formats? Please describe the assistance you provided.

Year 2—Fall '98 Update
Liaison Log: Section I

Name: ______________________ **School District:** ____________________

City: ______________________________ **State:** ____________________

3. List and explain how each teacher has been implementing the modification/differentiation/enrichment strategies (attach additional sheets as necessary).

> For example:
>
> **Teacher's name:** John Smith
>
> **Strategies:** John gave his entire 4th grade class a pretest on an upcoming unit on maps and globes. Six students demonstrated sufficient knowledge of the concepts and skills (e.g., longitude, latitude, map projections). Because these students were interested in maps, John gave them the opportunity to work on a group project—making a map of the planet Mars. To do this, they downloaded pictures and information from the NASA Web site, etc. They made maps of Mars in different media and also used several map projection techniques. The completed maps were made available to teachers who could use them in their classes.

Liaison: Please return this information by December, 1998

Year 2—Spring '99 Update

Liaison Log: Section II

Name: ______________________ **School District:** ____________________

City: ______________________________ **State:** ______________________

Please respond to these statements after teachers have been implementing the strategies for a few months (by April 30, 1999). Note: this Spring '99 Liaison Log was included with the Fall '98 mailing. If you can't find it, here it is again.

---

1. What was most difficult for teachers when they were implementing the strategies?

2. What suggestions do you have to improve the successful implementation of the modification/differentiation/enrichment strategies in regular classrooms?

3. What professional development practices are effective in changing teachers' behaviors?

4. Please describe how one teacher approached a classroom lesson before and after the training and practice in curriculum differentiation/modification/enrichment.

5. As a liaison, you were involved in collegial coaching. To what extent was collegial coaching an effective strategy in helping teachers experiment with a new strategy?

6. Describe how curriculum differentiation/modification/enrichment benefited students. You may choose to focus on specific students so your description contains detail that will help us understand the impact of the strategies.

7. Please share an anecdote about the administrator's perceptions of the effects of the training on teachers' practices.

8. What is the impact of the strategies on the teachers and students? Please give specific examples.

9. To what extent is the "big red notebook" an effective way to provide training to local people?

Liaison: Please return this information by April 30, 1999

Appendix I
Assumptions Survey for Liaisons

Do this first!

Please complete this survey before you preview the materials. 12-97

Extending Gifted Education Pedagogy to Regular Classrooms

Assumptions Survey for Liaisons

NRC
G/T

Name ____________________

School District ____________________

City, State ____________________

Please respond to the following statements.

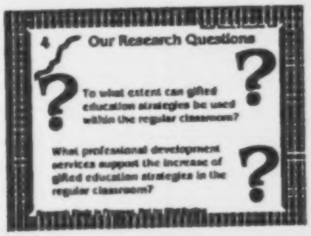
	strongly disagree	disagree	agree	strongly agree
1. I believe that gifted students can make it on their own without teacher direction.	1	2	3	4
2. I believe that only the top 1-2% percent of our student population should be identified for gifted and talented services.	1	2	3	4
3. I believe that only the top 3-5% of our student population should be identified for gifted and talented services.	1	2	3	4
4. I believe that only the top 5-10% of our student population should be identified for gifted and talented services.	1	2	3	4
5. I believe that only the top 10-15% of our student population should be identified for gifted and talented services.	1	2	3	4
6. I believe an effective gifted program offers services in the classroom.	1	2	3	4
7. I believe an effective gifted program offers services through special programs.	1	2	3	4
8. I believe an effective gifted program offers services throughout the community.	1	2	3	4
9. I believe an effective gifted program offers services for students who already possess strong cognitive and academic abilities.	1	2	3	4
10. I believe an effective gifted program offers services to promote the identification of strengths, the development of talent, and more optimal learning for all students.	1	2	3	4
11. I believe an effective gifted program offers services that address all students' social and emotional concerns and issues.	1	2	3	4

Appendix J
Research in a Nutshell

RESEARCH IN A NUTSHELL

Susan DiInnocenti

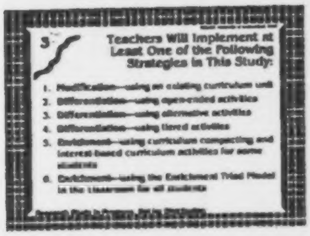
NRC/GT



4 Our Research Questions

To what extent can gifted education strategies be used within the regular classroom?

What professional development services support the increase of gifted education strategies in the regular classroom?



3 Teachers Will Implement at Least One of the Following Strategies in This Study:

1. Modification—using an existing curriculum unit
2. Differentiation—using open-ended activities
3. Differentiation—using alternative activities
4. Differentiation—using tiered activities
5. Enrichment—using curriculum compacting and interest-based curriculum activities for some students
6. Enrichment—using the Enrichment Triad Model in the classroom for all students

The research questions posed by The National Research Center on the Gifted and Talented study of Extending Gifted Education Pedagogy to Regular Classrooms focus on making inferences about how gifted strategies can be used in the classroom and to what extent professional development services increase strategy use.

The strategies being implemented are research based and have been tested in gifted education environments. To extend these strategies and have research support in the regular classroom, practicing professionals are interviewed, observed, and questioned via measuring tools (instruments) on the implementation process. These instruments are the basis of gathering qualitative and quantitative data by which inferences are made.

Following are a few points about this research process to explain how important your information is and what happens to it once you forward it to the district liaison. To us, it is not just another piece of paperwork but data that reflect current educational environments.

Qualitative - this type of research defines a setting, people or theme of a culture through the use of interviewing, observing and analyzing documentation. It is an inductive approach which centers on the use of words to describe individuals, settings or cultures.

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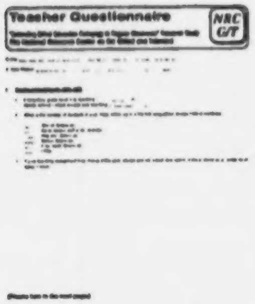
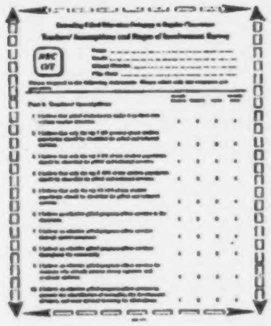
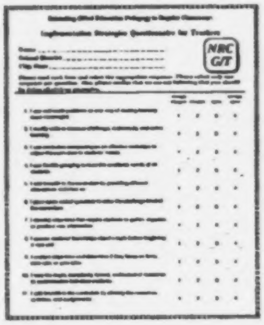


Quantitative - deals with numerical data collected on a group through use of instruments (e.g., *Teacher Questionnaire, Teachers' Assumptions* and *Implementation Strategies).* Interviewing can also be utilized to collect quantitative information but this method is not being used for this study.



Questionnaires - instruments that provide an effective way of collecting data. The questionnaires in this study, *Teacher Questionnaire, Teachers' Assumptions* and *Implementation Strategies,* gather numerical data on attitudes, beliefs and current practices regarding gifted and average students. We will use statistical programs to evaluate your responses.

Missing Data - in order for the statistical programs to be valid and reliable, answers **must be completed.** Yes, your written comments are important in a qualitative manner but the quantitative questionnaires with multiple choice (scaled) answers are invalid unless one choice is circled. In other words, your views cannot be used unless everything is filled in correctly and completely.



Demographics - as part of our research, we are trying to paint the picture of what your classrooms look like. Do we have a majority of experienced or novice teachers? Is there a multicultural representation of both teachers and students? Does gender or level of education play a role in delivering gifted pedagogical strategies? Is gifted training being offered as a professional development choice? These types of data help us determine if we are actually getting a representative sample of teachers.

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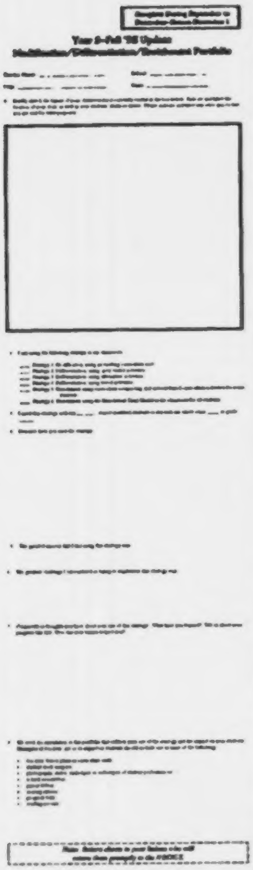

Pre-Post - yes, the questionnaires you receive this month will be administered again next Spring as we conclude the study. They will, however, be a different color. This repetitive process helps us look at classrooms over time.

Portfolios - as mentioned in the qualitative definition, these data provide a picture of what is going on in classrooms over time. Your detailed portfolio and work examples allow us to have a thick description of classroom practices. Specific information related to the implemented strategy will create a more accurate picture of what is really taking place in classrooms.

Voice - teachers are change agents for education; they influence what happens today and tomorrow. Unless their information is shared with researchers and policy makers that change may never occur. We at The National Research Center on the Gifted and Talented appreciate your voice and will forward you the results after the data are analyzed over the next two years. **Thank you for all your time in this process and most importantly thank you for what you do -each day with your students!**

THANK YOU from the NRC/GT

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Appendix K
Researcher's Anecdotal Records

Researcher's Anecdotal Record

Date: ________________ From: ______________________________________

Treatment No. ______

Question or Concern:

Response Provided:

Date: ________________ From: ______________________________________

Treatment No. ______

Question or Concern:

Response Provided:

Appendix L
Teachers' Assumptions and Stages of Involvement Survey

Teachers must fill out this survey before the training. January 1998

Extending Gifted Education Pedagogy to Regular Classrooms

Teachers' Assumptions and Stages of Involvement Survey

Name ______________________________
Grade ______________________________
School District ______________________________
City, State ______________________________

NRC G/T

Please respond to the following statements.

	strongly disagree	disagree	agree	strongly agree
1. I believe that gifted students can make it on their own without teacher direction.	1	2	3	4
2. I believe that 1-2% percent of our student population should be identified for gifted and talented services.	1	2	3	4
3. I believe that 3-5% of our student population should be identified for gifted and talented services.	1	2	3	4
4. I believe that 5-10% of our student population should be identified for gifted and talented services.	1	2	3	4
5. I believe that 10-15% of our student population should be identified for gifted and talented services.	1	2	3	4
6. I believe an effective gifted program offers services in the classroom.	1	2	3	4
7. I believe an effective gifted program offers services through special programs.	1	2	3	4
8. I believe an effective gifted program offers services throughout the community.	1	2	3	4
9. I believe an effective gifted program offers services for students who already possess strong cognitive and academic abilities.	1	2	3	4
10. I believe an effective gifted program offers services to promote the identification of strengths, the development of talent, and more optimal learning for all students.	1	2	3	4
11. I believe an effective gifted program offers services that address social and emotional concerns and issues.	1	2	3	4

Part II: Stages of Involvement	strongly disagree	disagree	agree	strongly agree
12. I address the needs of students in the regular classroom by modifying/differentiating/enriching the curriculum.	1	2	3	4
13. I have very limited knowledge of modification/ differentiation/enrichment strategies.	1	2	3	4
14. I communicate with other staff members about modification/differentiation/enrichment strategies beyond just acknowledging that they exist.	1	2	3	4
15. I discuss the modification/differentiation/enrichment strategies and exchange descriptive information, materials, or ideas with other staff members.	1	2	3	4
16. I discuss resources needed for initial use of modification/ differentiation/enrichment strategies with other staff members.	1	2	3	4
17. I discuss management and logistical issues related to the use of modification/differentiation/enrichment strategies with other staff members.	1	2	3	4
18. I can describe the current use of modification/ differentiation/enrichment strategies with other staff members with little or no reference to ways of changing the strategies.	1	2	3	4
19. I discuss my own methods of using modification/ differentiation/enrichment strategies to improve student outcomes with other staff members.	1	2	3	4
20. I discuss efforts to improve student outcomes through collaboration with staff members on personal use of modification/differentiation/enrichment strategies.	1	2	3	4
21. I have not analyzed the use of modification/ differentiation/enrichment strategies, their characteristics, possible use, or consequences of use.	1	2	3	4
22. I analyze detailed requirements and available resources for initial use of modification/differentiation/enrichment strategies.	1	2	3	4
23. I assess the use of modification/differentiation/ enrichment strategies in global terms without reference to making changes.	1	2	3	4

	strongly disagree	disagree	agree	strongly agree
24. I assess the use of modification/differentiation/enrichment strategies for the purpose of changing current practices to improve student outcomes.	1	2	3	4
25. I analyze advantages and disadvantages of making major changes in the use of modification/differentiation/enrichment strategies.	1	2	3	4
26. I identify steps and procedures needed to obtain resources and organize activities and events for initial use of modification/differentiation/enrichment strategies.	1	2	3	4
27. I develop plans for organizing and managing resources, activities, and events related primarily to immediate, ongoing use of modification/differentiation/enrichment strategies.	1	2	3	4
28. I develop intermediate and long-range plans that anticipate possible and needed steps, resources, and events designed to enhance student outcomes resulting from modification/differentiation/enrichment strategies.	1	2	3	4
29. I plan specific actions to coordinate own use of modification/differentiation/enrichment strategies with others to achieve increased student outcomes.	1	2	3	4
30. I believe that logistics, time, management, and resource organization are the focus of most personal efforts to use modification/differentiation/enrichment strategies.	1	2	3	4
31. I believe that personal use of modification/differentiation/enrichment strategies is going along satisfactorily with few, if any, problems.	1	2	3	4
32. I spend time and energy collaborating with staff members about integrating own use of modification/differentiation/enrichment strategies.	1	2	3	4
33. I have taken no action toward learning about or using modification/differentiation/enrichment strategies.	1	2	3	4
34. I explore modification/differentiation/enrichment strategies and requirements for their use by talking to others, and reviewing descriptive information and sample materials.	1	2	3	4
35. I observe other staff members using modification/differentiation/enrichment strategies.	1	2	3	4

	strongly disagree	disagree	agree	strongly agree
36. I study the reference and resource materials related to modification/differentiation/enrichment strategies in depth.	1	2	3	4
37. I manage the modification/differentiation/enrichment strategies with varying degrees of efficiency.	1	2	3	4
38. I use modification/differentiation/enrichment strategies smoothly with minimal management problems.	1	2	3	4
39. I explore and experiment with alternative combinations of modification/differentiation/enrichment strategies with existing practices to maximize student involvement and to optimize student outcomes.	1	2	3	4
40. I collaborate with other staff members in the use of modification/differentiation/enrichment strategies as a means for expanding the impact on students.	1	2	3	4
41. I believe that curriculum for students with high abilities should be based on students' interests and strengths.	1	2	3	4

Appendix M
Implementation Strategies Questionnaire for Teachers

January, 1999

Extending Gifted Education Pedagogy to Regular Classrooms

Implementation Strategies Questionnaire for Teachers

NRC G/T

Name ______________________________

School District ______________________________

City, State ______________________________

Please read each item and select the appropriate response. Please select only one response per question. Also, please realize that we are not inferring that you should be doing all of these strategies.

	strongly disagree	disagree	agree	strongly agree
1. I use real world problems as one way of making learning more meaningful.	1	2	3	4
2. I modify units to increase challenge, authenticity, and active learning.	1	2	3	4
3. I use curriculum compacting as an effective technique to adjust the curriculum to students' needs.	1	2	3	4
4. I use flexible grouping to meet the academic needs of all students.	1	2	3	4
5. I add breadth to the curriculum by providing different alternatives and choices.	1	2	3	4
6. I pose open-ended questions to raise the challenge level of the curriculum.	1	2	3	4
7. I develop objectives that require students to gather, organize, or produce new information.	1	2	3	4
8. I assess students' knowledge about a topic before beginning a new unit.	1	2	3	4
9. I analyze objectives and determine if they focus on facts, concepts, or principles.	1	2	3	4
10. I vary the depth, complexity, format, and nature of resources to accommodate individual students.	1	2	3	4
11. I add breadth to the curriculum by altering the resources, activities, and assignments.	1	2	3	4

-page 1 of 2-

January, 1999

	strongly disagree	disagree	agree	strongly agree
12. I analyze, evaluate, and improve existing curriculum units and lesson plans.	1	2	3	4
13. I review my curriculum objectives and determine the extent to which they represent powerful objectives and big ideas.	1	2	3	4
14. I use interest groups in which students pursue individual or small group projects.	1	2	3	4
15. I analyze lessons or curriculum units and make decisions to eliminate or change teaching and learning activities.	1	2	3	4
16. I have students develop interest-based projects and share them with others.	1	2	3	4
17. I collect information about students' strengths, abilities, interests, and learning styles.	1	2	3	4
18. I have students use authentic resources as they search for information related to a specific unit.	1	2	3	4
19. I schedule class time for students to pursue self-selected interests.	1	2	3	4
20. I use tiered assignments (i.e., multiple assignments) for the same objective and vary the complexity.	1	2	3	4
21. I use my knowledge of students' strengths, talents, and abilities to plan lessons and units.	1	2	3	4
22. I develop lessons and units that can be adapted to the whole class, a large group of students, or a small group of students.	1	2	3	4
23. I review objectives of lessons or curriculum units and increase the complexity as needed to meet the needs of students.	1	2	3	4
24. I have students use advanced methodological skills (e.g., computer searches, survey techniques).	1	2	3	4

Appendix N
Modification/Differentiation/Enrichment Portfolio

Shortly After Inservice

Modification/Differentiation/Enrichment Portfolio

Teacher Name: ______________________ **School:** ____________________

City: ______________________________ **State:** _____________________

1. Briefly sketch the layout of your classroom (as it currently exists) in the box below. Indicate and label the location of your desk, as well as your students' desks or tables. Please indicate and label any other spaces that you use and for what purposes.

Shortly After Inservice

Teacher Name: ______________________ **School:** ___________________

City: ______________________________ **State:** ____________________

Please complete the following section after you have attended the professional development session(s) on these topics conducted by your local trainer.

2. After attending the inservice(s) on modification, differentiation, and enrichment, I selected the following strategy to use in my classroom:

___ Strategy 1 Modification, using an existing curriculum unit
___ Strategy 2 Differentiation, using open-ended activities
___ Strategy 3 Differentiation, using alternative activities
___ Strategy 4 Differentiation, using tiered activities
___ Strategy 5 Enrichment, using curriculum compacting and interest-based curriculum activities for some students
___ Strategy 6 Enrichment, using the Enrichment Triad Model in the classroom for all students

3. After learning about the use of modification, differentiation, and enrichment, I am considering the use of the strategy checked above with the following number of students in my elementary classroom or in the middle school class I am targeting for this study:

___ 1-2 students
___ One small group of students
___ Two small groups of students
___ Most of my students
___ All of my students

Note: Return blue sheets to your liaison who will immediately return them to the NRC/GT.

One Month After the Inservice

Modification/Differentiation/Enrichment Portfolio

Teacher Name: ______________________ **School:** ____________________

City: ______________________________ **State:** _____________________

This section is to be completed approximately one month after the initial inservice training session(s) in your school.

1. During the past month, I used the following strategy in my class:

    ___ Strategy 1 Modification, using an existing curriculum unit
    ___ Strategy 2 Differentiation, using open-ended activities
    ___ Strategy 3 Differentiation, using alternative activities
    ___ Strategy 4 Differentiation, using tiered activities
    ___ Strategy 5 Enrichment, using curriculum compacting and interest-based curriculum activities for some students
    ___ Strategy 6 Enrichment, using the Enrichment Triad Model in the classroom for all students

2. I used this strategy with (a)_________ (insert number) students or (b) with my whole class _____ in grade ______.

3. Describe how you used the strategy:

4. The greatest success that I had using this strategy was:

One Month After the Inservice

Teacher Name: ______________________ **School:** ____________________

City: ______________________________ **State:** _____________________

5. The greatest challenge I encountered in trying to implement this strategy was:

6. Comments or thoughts you have about your use of this strategy: What have you learned? Tell us about your progress. How has your trainer helped you?

7. Please attach documentation in this portfolio that reflects your use of the strategy and the impact on your students. Examples of teachers' use or its impact on students may include:

- teachers' lesson plans or curriculum units
- student work samples
- photographs, slides, audiotapes or videotapes of student performances
- school newsletters
- parent letters
- scoring rubrics
- progress tests
- reading records

Note: Return yellow sheets to your liaison who will return them promptly to the NRC/GT.

Three Months After the Inservice

Modification/Differentiation/Enrichment Portfolio

Teacher Name: ______________________ **School:** ____________________

City: ______________________________ **State:** _____________________

1. Briefly sketch the layout of your classroom (as it currently exists) in the box below. Indicate and label the location of your desk, as well as your students' desks or tables. Please indicate and label any other spaces that you use and for what purposes.

Three Months After the Inservice

Teacher Name: ________________________ **School:** ____________________

City: ________________________________ **State:** ______________________

This section is to be completed approximately three months after the initial inservice training session(s) in your school.

2. The greatest success that I had in using this strategy was:

3. The greatest challenge I encountered when implementing this strategy was:

4. Please attach documentation for this portfolio that reflects your use of the strategy and the impact on your students. Examples of teachers' use or its impact on students may include:

   - teachers' lesson plans or curriculum units
   - student work samples
   - photographs, slides, audiotapes or videotapes of student performances
   - school newsletters
   - parent letters
   - scoring rubrics
   - progress tests
   - reading records

Three Months After the Inservice

Teacher Name: ______________________ **School:** ____________________

City: ______________________________ **State:** _____________________

Please also complete this section approximately three months after the initial inservice training session(s).

5. My overall opinions about my use of modification, differentiation, and enrichment strategies this year are:

6. Next year I want to change or expand my efforts in this area by:

7. I would have been more effective in modifying, differentiating, and enriching curriculum and instruction this year if I had been able to:

8. If your principal had a role or an impact on the process, please describe.

9. The benefits to my students whose work was modified, differentiated, or enriched include:

10. The following kinds of help and assistance would make this process easier to accomplish:

11. Modifying, differentiating, and enriching curriculum and instruction required approximately _____ hours of effort for me to accomplish each week.

Note: Please return pink sheets to your liaison who will forward them to the NRC/GT by June 1.

Complete During September to December–Return December 1.

Year 2–Fall '98 Update
Modification/Differentiation/Enrichment Portfolio

Teacher Name: ______________________ **School:** ____________________

City: ______________________________ **State:** ____________________

1. Briefly sketch the layout of your classroom (as it currently exists) in the box below. Indicate and label the location of your desk, as well as your students' desks or tables. Please indicate and label any other spaces that you use and for what purposes.

Teacher Name: ______________________ **School:** ____________________

City: ______________________________ **State:** _____________________

2. I am using the following strategy in my classroom:

    ___ Strategy 1 Modification, using an existing curriculum unit
    ___ Strategy 2 Differentiation, using open-ended activities
    ___ Strategy 3 Differentiation, using alternative activities
    ___ Strategy 4 Differentiation, using tiered activities
    ___ Strategy 5 Enrichment, using curriculum compacting and interest-based curriculum activities for some students
    ___ Strategy 6 Enrichment, using the Enrichment Triad Model in the classroom for all students

3. I used this strategy with (a)_________ (insert number) students or (b) with my whole class _____ in grade ______.

4. Describe how you used the strategy:

5. The greatest success that I had using this strategy was:

Teacher Name: ______________________ **School:** ____________________

City: ______________________________ **State:** ______________________

6. The greatest challenge I encountered in trying to implement this strategy was:

7. Comments or thoughts you have about your use of this strategy: What have you learned? Tell us about your progress this fall. How has your trainer helped you?

8. We need documentation in this portfolio that reflects your use of the strategy and the impact on your students. Examples of teachers' use or its impact on students should include one or more of the following:

   - teachers' lesson plans or curriculum units
   - student work samples
   - photographs, slides, audiotapes or videotapes of student performances
   - school newsletters
   - parent letters
   - scoring rubrics
   - progress tests
   - reading records

Note: Return sheets to your liaison who will return them promptly to the NRC/GT.

Complete During January to April–Return on April 30

Year 2–Spring '99 Update
Modification/Differentiation/Enrichment Portfolio

Teacher Name: ______________________ **School:** ____________________

City: ______________________________ **State:** ____________________

1. Briefly sketch the layout of your classroom (as it currently exists) in the box below. Indicate and label the location of your desk, as well as your students' desks or tables. Please indicate and label any other spaces that you use and for what purposes.

Teacher Name: ____________________ **School:** ____________________

City: ____________________ **State:** ____________________

2. I am using the following strategy in my classroom:

___ Strategy 1 Modification, using an existing curriculum unit
___ Strategy 2 Differentiation, using open-ended activities
___ Strategy 3 Differentiation, using alternative activities
___ Strategy 4 Differentiation, using tiered activities
___ Strategy 5 Enrichment, using curriculum compacting and interest-based curriculum activities for some students
___ Strategy 6 Enrichment, using the Enrichment Triad Model in the classroom for all students

3. The greatest success that I had in using this strategy was:

4. The greatest challenge I encountered when implementing this strategy was:

Teacher Name: ______________________ **School:** ____________________

City: ______________________________ **State:** ______________________

5. We need documentation in this portfolio that reflects your use of the strategy and the impact on your students. Examples of teachers' use or its impact on students should include one or more of the following:

   - teachers' lesson plans or curriculum units
   - student work samples
   - photographs, slides, audiotapes or videotapes of student performances
   - school newsletters
   - parent letters
   - scoring rubrics
   - progress tests
   - reading records

6. My overall opinions about my use of modification, differentiation, and enrichment strategies this year are:

7. I would have been more effective in modifying, differentiating, and enriching curriculum and instruction this year if I had been able to:

Teacher Name: ________________________ **School:** ______________________

City: _________________________________ **State:** ________________________

8. If your principal had a role or an impact on the process, please describe.

9. The benefits to my students whose work was modified, differentiated, or enriched include:

10. The following kinds of help and assistance would make this process easier to accomplish:

Teacher Name: ______________________ **School:** ____________________

City: ______________________________ **State:** _____________________

11. What is the impact of the strategies on teachers and students? Please give specific examples.

12. Is there one or more student(s) whose talents have been recognized as a result of these strategies? Please give specific examples.

13. Modifying, differentiating, and enriching curriculum and instruction required approximately _____ hours of effort for me to accomplish each week.

Note: Please return sheets to your liaison who will forward them to the NRC/GT by April 30.

Appendix O
Samples of Successful Strategies Used by Teachers

Interdisciplinary Unit of Study Planning Matrix

Elementary, Page 1

Grade Level:
6th

Unit/Topic/Theme:
Electricity

Discipline	Type I Content and Introductory Activities	Type II Process Training Lessons	Type III Interest-based Independent Projects/Studies
Science	**Textbook** "Electricity and Magnetism" with corresponding activity log (MacMillan/McGraw-Hill Science)	Hands-on experiences conducting electricity experiments while working in group settings. Using the scientific method and writing up group lab reports as well as individual lab reports.	Create a science fair project to be judged and displayed in the 6th Grade Elementary Science Fair. Using a rubric, evaluate your own science fair project.
	"Electrical Connections" by AIMS		
	Resource Person "Detective A. C. Sparks" from Tipmont R.E.M.C.	Detective A. C. Sparks demonstrates electrical fire hazards and how to prevent them in your home.	Using a rubric, practice judging science fair projects displayed by the teacher to prepare for judging the K-5 Elementary Science Fair.
	"George the Kissing Balloon" (a static electricity attention getter.)	Attention getter to introduce the unit as well as create a problem-solving opportunity: observe and take notes; then based on observations, create your own "George" which will act the same way as the one you observed.	Using a rubric, judge at least 3 student projects at the K-5 Elementary Science Fair. Create a static electricity game board.
	Interest Development Center Light boxes and cards as well as other items that can be produced using skills from the unit	Attention getter to create interest in the topic and get students excited about being able to create a variety of electrical devices quickly and easily on their own at home. The Flashlight Repair Company broken flashlights donated by another classroom were given to the students to be fixed.	Create a light box card to be used by another grade level on any subject. Create a light box to be used with your light box card. Write a letter to the customer explaining the possibilities you investigated to solve the problem of fixing the flashlight.

Interdisciplinary Unit of Study Planning Matrix

Elementary, Page 1

Grade Level:
6th

Unit/Topic/Theme:
Electricity

Discipline	Type I Content and Introductory Activities	Type II Process Training Lessons	Type III Interest-based Independent Projects/Studies
	"Journey Inside the Computer" by Intel	A complete resource kit which gives students the opportunity to apply skills learned during the unit to computers. Also used to create interest in future careers in this field.	Apply new knowledge to using the computer in the classroom as well as at home. Use problem solving skills to analyze why the classroom computer cannot complete requested tasks as needed.
Social Studies	**Trade Books** "The Story of Electricity" by George Delucy "Quick, Annie Give me a Catchy Line" by Robert Quackenbush	Repeat experiments conducted by scientists throughout history and create a time line. A close up look at one scientist and how several failed attempts led up to success due to his persistence. (Discussion about "Winners and Losers").	Choose a scientist to research and become that character when presenting to class.
	Activity Cards "Back to the Dark Ages" "Bright Ideas"	Write a story about what life would be like without electricity. Write a shape poem about the invention of the light bulb using the shape of the first light bulb.	Give up an electrical item for one week and write what happened--how did you adapt for the loss of the use of this item?
Math	Application of skills learned from basic math curriculum	Learn how the computer uses binary code to carry out requested tasks. Calculate your electricity bill. Calculate amps, ohms, and voltage.	
Language Arts	**Trade Books** "The Secret Life of Dilly McBean" by Dorothy Haas	Discovering the connection between magnetism and electricity.	

Interdisciplinary Unit of Study Planning Matrix

Elementary, Page 1

Grade Level:
6th

Unit/Topic/Theme:
Electricity

Discipline	Type I Content and Introductory Activities	Type II Process Training Lessons	Type III Interest-based Independent Projects/Studies
	Trade Books "Dear Mr. Henshaw" by Beverly Cleary	Drawing a diagram of a lunch box alarm--"Is the procedure given clear enough so someone can repeat his experiment?" Discussion of problem areas. Write your own story about solving a problem you have that would need an alarm system and write a clear procedure so someone else can repeat your experiment.	Build an alarm system to solve a problem you have at home or at school.
Language Arts Continued	"In Came the Darkness" by Peter Z. Grossman	Fact/Opinion: Based on the story, which type of circuit was Con Edison relying on to keep New York City from experiencing a serious blackout?	Design a circuit which will solve the problem in the story.
	"The Origin of Fire" from A Comparative Anthology of Children's Literature collected by Mary Ann Nelson.	Discuss fantasy/mythology. Write a story (fantasy/myth) about the origin of electricity.	
	"The Red Balloon" (video)	Fact/Opinion: Write up a summary defending whether events in the video were fact or fiction.	
	Class Library 40 books from the public library about science fair projects as well as electricity resources. Students brought in selections to add to our library as well.	Used to provide more information about electricity and items that can be created on an individual basis at home. Also used as resources for science fair projects.	

Differentiation: Tiered Activities: Grade Level 1

Fish/Sea Animals

Goals:

Basic: The children tell or write what a habitat is.
The children name animals that live in the water (both fresh and salt water.)

The children tell or write how fish are different from other animals.

The children pick a water animal to do research on to find out how it lives (food, babies, defense, interesting facts).

Intermediate: The children tell or write how the researched animal affects its environment and how the environment affects it.
The children prioritize the importance of how the animal and environment affect each other from most to least important. The children tell or write that the researched animal is a carnivore, herbivore, or omnivore.

Advanced: The children tell or write how the researched animal affects other animals and is affected by them and how (if) it affects people and is affected by us.
The children make a list of reasons to keep their animal from becoming endangered and prioritize the reasons from the most to least important.

Pre-assessment Questions:

What is a habitat?
What does camouflage mean?
Name as many animals as you can that live in the water.
How is a fish different from animals that live on land?
What is the difference between ocean water and lake or river water?
Is a dolphin a fish?
Is a shark a fish?
What is a carnivore, herbivore, and omnivore?
What does endangered mean?

Instruction:

Depending upon the answers to the pre-assessment, I will do whole group instruction on habitats, different kinds of animals, water environments, and defensive mechanisms. Each student will choose a sea animal to research, take notes on cards, and type the report on the computer. The research report includes a description of the animal, its babies, what it eats, where it lives, and what defensive mechanisms it uses.

A smaller group will discuss what kind of an eater the animals are and how they affect other animals. We will discuss how the environment and man affect the animals and vice versa.

Products:

All the students will research and type a report about a chosen animal. They will also draw a picture of the animal in its habitat.

Alternative activities:

As children finish their reports, they can choose other activities.
Write a make-believe story about their animal.
Design their own fish (based on another animal like catfish, dogfish, etc.) and tell why.
Put fish names in alphabetical order. . . .
Pick fish that we eat, survey the class as to a favorite, and make a graph.
Make a water diorama.
Make a paper or clay model.
Create a habitat mural.
Make a poster of an endangered animal. Show or tell why its endangered.
Interview someone who has a job as a marine biologist, oceanographer at an aquarium, etc.
Make a food chain for their animal and others in the habitat.

Resources:

Fishy Facts unit in reading series
Books from the library
Zoobooks, Big Back Yard, other magazines
Internet
Materials children bring from home
Encyclopedias
Childcraft

"Treasure in the Snow"
Activities

I. Read carefully pages 68-83, "Treasure in the Snow" from Wind by the Sea.

II. Complete workbook page 28.

III. Choose and complete 3 of the following activities:

1. Make a line graph showing how the population in Norway has changed since 1930. Use a computer to generate the graph, if possible.

    Use this information:
    1930 – 2,814,194
    1946 – 3,156,950
    1950 – 3,278,546
    1960 – 3,591,234
    1970 – 3,874,133
    1980 – 4,091,132
    1990 – (use a current almanac)

    Answer these questions:
    1. What does the graph show about the population of Norway?
    2. Why was there a larger increase in population between 1930 and 1946 than between 1946 and 1950?
    3. Why do you think that no census was taken in Norway in 1940?

2. Interview someone who remembers living during World War II. Make an audio or videotape of this interview. Make sure your questions are about life during this war.

3. Research the properties of gold. Make a poster highlighting these properties.

    Answer these questions:
    1. Why is gold a popular metal for jewelry?
    2. What does "18 karat" mean?
    3. What is an alloy?

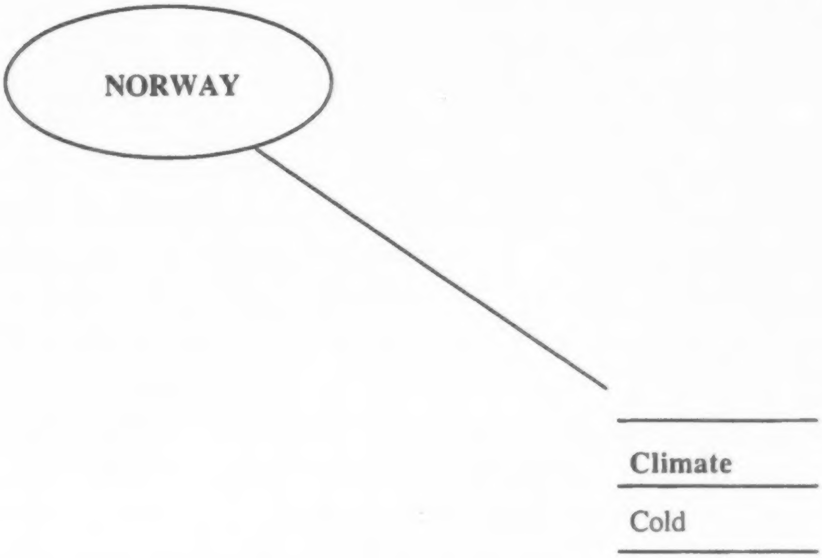
4. The main event in "Treasure in the Snow" is that four children transport gold by sled to help their country. Imagine that you are a newspaper reporter and have just uncovered this story. Write a newspaper article about the event including as many details as possible. Include a "photograph" (illustration). Don't forget who, what, why, where, when, and how.

5. Research Norway. Make a semantic map of information about these categories: natural resources, physical features, major cities, climate, industries, government.

Answer these questions about the story using information about Norway:

1. How might Norway's geographical features help the Norwegians get the gold out of the country?
2. What route do you think the soldiers in the story took to get to the village where the story takes place?
3. Do you think the German army might have taken an overland route to Norway? Why or why not?

EXAMPLE (semantic map)

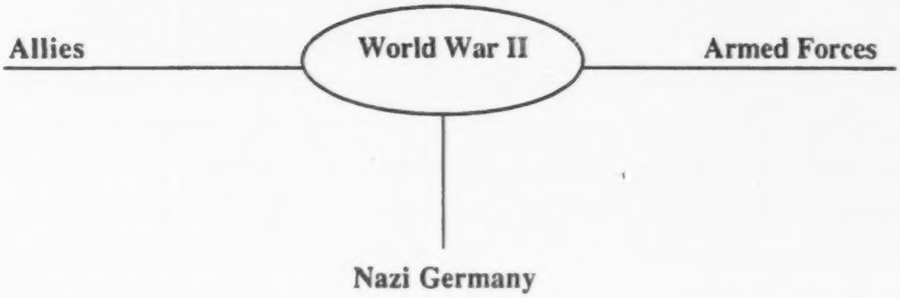


"Treasure in the Snow"

Basic Lesson

Objectives: The student will read and learn the meaning of unfamiliar words.
The student will demonstrate comprehension of a variety of selections.
The student will use writing as a tool for learning in all subjects.
- Summarize what is read.

Activities: Introduction/Preassessment of knowledge
- Students will complete a semantic map about World War II.



Whole Group Instruction
- Students will identify list of vocabulary words in the selection and define them using context clues and the glossary.
- Students will read the story aloud and discuss various aspects of the story such as inference, details, sequence.
- Students will participate in a discussion about summarizing information.
- Student will participate in a discussion about character traits and characterization.

Individual Activities/Evaluation
- Students will complete a worksheet on the usage of vocabulary words.
- Students will complete, using the book, a worksheet on story comprehension, using the cloze method.
- Students will take a vocabulary test.

"Treasure in the Snow"
Differentiated Lesson – Alternative Activities

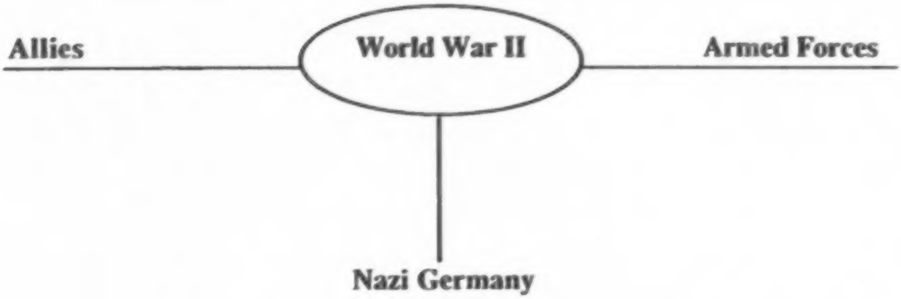
Participants: Students identified as "Gifted" will participate in the differentiated lesson of alternative activities.

Objectives: The student will demonstrate comprehension of a variety of selections.
- Use context clues of read unfamiliar words.
- Organize information for use in written presentations.
- Draw conclusions and make inferences based on explicit and implied information.

The student will write narratives, descriptions, and explanations.
The student will use writing as a tool for learning in all subjects.
- Summarize what is read.

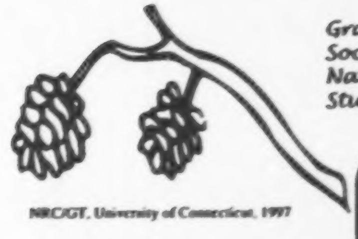
The student will select the best sources for a given purpose.

Activities: Introduction/Preassessment of knowledge
- Students will complete a semantic map about World War II.



Whole Group Instruction
- Students may participate in reading the story aloud and the discussion if desired.

Individual Activities/Evaluation
- Students will complete required and chosen activities from list provided.



NRC/GT, University of Connecticut, 1997

Grade 3
Social Studies:
Native-American
Study

Branching Out

With Open-Ended Activities

Objective/Goal

Students will conduct an authentic study demonstrating knowledge of these themes as they apply to Native-Americans. (1) Conflict & Discrimination (2) Environment (3) Resources (4) Tradition & Change (5) Diversity.

Whole Group Introduction/Instruction/Learning Activities

(to be provided by the teacher)

Students were exposed to many, varied literature related to Native-American such as books, poetry, myths, and legends. Each student was encouraged to develop a passion area to guide his/her research. The students were reminded to guide their research using year-long themes of (1) Conflict & Discrimination (2) Environment & Change (3) Resources (4) Tradition & Change (5) Diversity.

Inductive Teaching & Constructivist Learning Activities

Presented students with varied non-fiction and literature resources to help them develop a passion area within the study of Native-Americans. Helped guide student's formation of research questions they would like to answer in their original studies.

Scaffolded or Open-Ended Questioning Strategies

Used the storybook and Disney film, "Pocahontas" as a guideline for developing an understanding of the five year-long social studies themes. Used non-fiction books to aid students in their development of research questions to guide their studies. Included an advanced organizer in the form of a questioning form asking "Questions I have about the book or movie."

Open-Ended Resources and Assignments

Allowed students choice in product selection: written report on Hyperstudio, dictionary, model, book of facts, diorama, poster or bulletin board, chart or labeled diagram, illustration, poem, mobile, board game, song, demonstration. Gave students rubrics to guide their product completion and presentation process. (1) Conflict & Discrimination (2) Environment & Change (3) Resources (4) Tradition & Change (5) Diversity.

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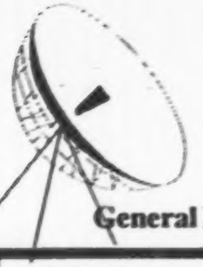
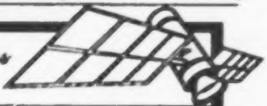


Offering Alternative Activities

To increase the breadth of a lesson

General Learning Objective: *Students will be able to understand tragedies in history.*



Varying Goal: *Understand human decisions and emotions in a moment in history.*

Learning Activities:	Resources:	Products:
-Students will decide upon a character who would have been on the ship, Titanic. -Develop list of decision-making skills (small grps). -How did the Goodwin family make this decision?	-A Night to Remember and The Night Lives On by Walter Lord. -"When the Great Ship Went Down" (Historical documentation) -Pictures/artifacts -Internet -Decision-making articles	Production of the play-"When the Great Ship Went Down"-to audience. (Death of the Goodwin family)

NRC/GT, University of Connecticut, 1997

Varying Goal: *Understand human decisions and emotions in their personal lives.*

Learning Activities:	Resources:	Products:
Form and develop 4 scenarios: *Wealthy vs. poor *Going to college *Buying a car *losing a loved one or pet Develop list of decision-making skills	*Books on counseling/growing up *Guest speakers (interview a social worker or counselor.) How do they help people make decisions?	"Dear Abby" articles. Write radio show.

Varying Goal: *Understand human relations and decision-making in the 1840's and 1850's.*

Learning Activities:	Resources:	Products:
-Read article about Donner family...develop generalizations on family decision-making. Discussion on why families survived and not single people. -Role play characters.	Magazines articles on pioneers in 1840's & 1850's. Magazine articles/books on Donner family.	Donner party- *write a short play about members of family who survived. *write monologue about single man on Donner party.

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Curriculum Triage and Modification

World War II

Curriculum Components	Original	Description	Modification
Objective	List the causes and effects of WWII, describe Alabama's role in the war effort, and describe Tuskegee Airmen.	Not as challenging as it could be and lacks variety.	List some of Mobile's contributions and difficulties to the war effort in WWII. For example, housing and rationing, military bases, transportation, shipbuilding, and population/race relations.
Introduction	Teacher will ask the question, "Why is there frequently war when one country invades another?"	Not as challenging as it could be and lacks variety.	Teacher puts class in six cooperative groups in which they decide how they are going to present their topics.
Teaching Activity	Read and discuss pp. 290-297 and use globes and world maps to locate countries involved in WWII.		Teacher does research on each topic and shares with the group after completing Chapter 14.
Learning Activity	Instruct students to do activity pp. 82 and 83 and ask what they learned about WWII that could keep us out of future wars.	Could use creative project or activities and other resources.	Students get into groups to plan their strategies and do additional research.
Grouping Practices	Whole group		Using cooperative groups, give students a chance to reveal their special talents as needed. It also gave them a chance to do a thorough job on their special topic and bring it closer to home.
Resources	Alabama textbook and world map		Text, world map, globes, Mobile archives, school and public library, computer, parents, camera, and video.
Assessment	Textbook test		Textbook test and group grade.

Curriculum Triage and Modification
Grade 4, Social Studies

Curriculum Components	Original	Description	Modification
Objective	Advantages and disadvantages of immigration to America.	Could be taught only as factual knowledge.	Allow students to visualize and experience emotions and struggles of making the decision to emigrate.
Introduction	Students read a story about a family coming to American and discuss advantages/disadvantages of such a move.	Not as engaging as it could be.	Place students into groups of 5 or 6 and pose two questions: (1) Why did people come to this country? (2) Why would they be worried? Groups shared their ideas with the class.
Teaching Activity	Display vocabulary words on an overhead projector.	No context for words. Not engaging.	Introduce and discuss vocabulary as words occur in the story.
Learning Activity	Students read a story about coming to American and discuss advantages and disadvantages.	Students don't have much background information with which to make a list of advantages and disadvantages.	Assign students a writing activity: Pretend you are a Polish father. Write a letter to your parents explaining your reasons for leaving Poland. Also explain your concerns about such a move. Assign letter-writing activity. Remind students to use RAFTS technique [Role, Audience, Format, Topic, Strong (verbs, adjectives, adverbs)].
Grouping Practices	Large groups, individual work	Lacks variety	Large group in addition to partners and small groups (5 or 6)
Resources	Textbooks	Lacks variety and interest	Internet sites, including Statue of Liberty, Ellis Island, etc. Additional resources

Curriculum Triage and Modification

Short Stories

Curriculum Components	Original	Description	Modification
Objective	To understand the elements of a short story and create original short story setting, character, plot.	Could be taught only as factual knowledge.	Explain setting, character, & plot and be able to discuss and compare. Students will be able to create an original short story with definable elements.
Introduction	Students read in text and give explanations of elements from sample writings.	Not as motivating as it could be.	Ask students to recall a family story passed down and write down parts of the story. These could then be shared to find the elements common to each.
Teaching Activity	Student record definitions of terms with discussion.	Doesn't teach how to find or create elements-only defines them.	Explain that every detail in a short story is important and all elements must work together to communicate writer's main idea. Discuss specific elements after reading a variety of short stories in small groups, whole class, and individually. Group and individual & teacher presentations may be used.
Learning Activity	Students read stories and respond to recall questions.	Only one practice activity and not too motivating.	Ask students to do several different readings by a variety of authors to search for elements and use as models for original story. In groups, students write different endings for stories they read or change setting of familiar story, etc. A video could be viewed for similar activities; i.e., writing plot.

Curriculum Triage and Modification

Short Stories

Grouping Practices	Large groups, individual work	Lacks variety	Large group in addition to partners and small groups.
Resources	Textbooks	Lacks variety and interest	Short stories by Poe, O'Henry, Paulsen, etc. Videos, tall tales, fables, original stories by previous students.
Products	An essay explaining the elements of a short story.	Lacks variety, not enough practice, lacks depth	Students will write a short story with strong setting, characters, and plot.
Assessment	Evaluate story.	Lacks breadth & application	Use pre & posttest that asks students to: (1) define elements, (2) explain purpose, (3) evaluate others' and own writing. Measure gains.

Expedition—Yearlong Enrichment Program

Susan Greene*

Susan has been involved in a yearlong enrichment program involving Type I, II, and III activities, without recognizing it as such. Her teammate, Bob, is on an expedition to reach the summit of Mt. McKinley in Alaska. Susan and the rest of the team, which includes Paula, planned a curriculum around the theme of this expedition. They integrated all four core disciplines through activities such as constructing contour maps, reading adventure/survival books, inventing games, analyzing climbing statistics, predicting weather, and many more. They brought in speakers who were experienced climbers, watched videos and visited the IMAX Theater to see "Everest." The students then took over. They formed groups according to their interests and the quality of their job applications in order to assist the expedition in a variety of ways. The 11 groups ranged from "Fund Raising" and "Public Relations" to "Medical Research" and "Weather." Each group was assisted in endeavors by the "Web Browsers" group, which searched the internet for related material. The year's activities have culminated in the creation and maintenance of a website. Bob, the climber, has called from the mountain, to give reports on his progress, and to get weather updates.

Perhaps the most remarkable feature of this whole experience is that it involved 129 students, with only four teachers. The products generated throughout the year demonstrate how invested the students were in their work. Through their efforts, money was raised through foundation grants, and T-shirt sales; local TV and print media have provided extensive coverage, equipment was donated, and the website has provided much desired information to the families of other climbers on McKinley this May.

*names were changed

Archaeologists R Us

"Archaeologist R Us" was a year-long unit made possible by a Federal Title VI grant, which permitted the direct communication between my students and archaeologists from the [east and west coast]. Communication was established in February 1999 with the purchase of satellite telephone so students could monitor the research activities of [professors] carried out in Caracol, Belize, Central America. Students, having completed the attached curriculum activities, posed questions . . . regarding their study of the ancient Maya culture, and posted their responses on a website. A communication link was also established with [a professor from the west coast] during their work at El Pilar, Belize, Central America. Work with this team started in March and will continue through the end of our school year.

In March, 10 students and I traveled to Belize to see, firsthand, the work of [the professor] at El Pilar. Upon our return, those students became responsible for collecting the material presented in the various linked pages to [the website].

Additional activities associated with the project "Archaeologist R Us" were conducted during the Fall. A flintknapper, came to school and demonstrated the ancient art of making tools and weapons from obsidian. We conducted a practice archaeological dig in our long-jump pits at school and then an authentic dig at a local state park. Students completed a lab report on the experience, including interpreting the artifacts found. A local TV news team covered the event.

Recently, a group of students decided that they wanted to commemorate the year by selling personalized pens and notepads. They contacted various vendors for bids and arranged for printing of the pads. They have also contacted our various media to arrange for publicity for the website. This particular group has shown the most initiative in pursuing . . . interests.

Posttests have not been conducted at the time of this report, but will be done soon. I expect the results will show normal growth in school related skills, but greater interest in school itself.

The Development of Cultures
Grade 6

Key Concept: Adaptations

Generalizations:

Key: 1. Cultures develop based on landforms, climate, and resources.
2. Cultures develop around shared needs.
Secondary:
3. Cultures differentiate based on #1 and their degree of scientific knowledge and technology.
4. Cultures change due to information in #1, #2, #3.

Proficiencies Assessed:

Primary: Geography 1, Using Maps
Geography 5, Resource Usage
History 2, Historical Inquiry
Secondary: Geography 4, Human Interdependence
Geography 6, Planning for the Future
History 3, Social Diversity

Differentiation Strategy Used:

1. Flexible grouping – by interest. Culture research groups
2. Tiered Assignments – Comparative Essay and League of Ancient Civilizations
3. Product choices – Culture research presentations
4. Compacting/Alternative Assignments – Create a Culture

Objectives:

Knowledge: Students will be able to describe the basic characteristics of a region's ancient people and explain how the development of culture is dependent on the natural environment.
Skills: Students will be involved in researching information from a variety of texts and writing five or eight sentence paragraphs.
Prerequisite Knowledge: Students should have a basic understanding of climate zones, their location on the earth, and the environmental conditions therein. They should be familiar with certain vocabulary such as, but not limited to, natural resources, physical features, customs, development, relationship. . .

Resources:

Social Studies Textbook
Topic specific books from library: mixed reading levels
National Geographic Video: "The Five Themes of Geography"
Encyclopedia (book or CDRom)
Computer, with Hyperstudio or other multimedia presentation program
Interact's "Dig" and "Adapt"

Preassessment: (one class period)

Students are given the climate, landscape features, and natural resources of a place and are asked to describe, in writing, how they would survive (see "Culture Development"). Students who demonstrate a good understanding of how natural resources provide for cultural elements such as food, clothing, housing, transportation, etc. and include government and religion in their description, are offered a special project to create their own culture, complete with artifacts, which they will present to the whole class (see "Dig").

Phase 1: Whole Group Instruction

(Optional pre-set activities)

1. View National Geographic Society's "The Five Themes of Geography"
2. Conduct Interact's "Adapt" – if pre-assessment reveals minimal understandings

(For students who do not "test out": amount of time depends on number of cultures to be studied)

1. Read textbook chapters on various cultures. Use this opportunity to teach textbook reading skills, if necessary. Emphasize connections between cultural attributes and the climate/resources of the region.
2. Fill in the matrix while reading chapters. Do additional research to fill in the gaps, if necessary.
3. Teach students how to fill out a Venn diagram using the information in the matrix to compare two cultures of their choice.
4. Assign an essay comparing two cultures. This is where students will have to look at the geography of the region to explain the cultural differences or similarities. (Tiered assignment – length of paragraphs)

Students who do test out form groups of their choice to create a fictional culture (see "Dig").

Phase 2: Research Projects – All Students

Students will pick one of the cultures to study in depth. They will be working in small groups, which can be controlled by you (recommended) or left to student choice (see "League of Ancient Civilizations").

Designing Groups: Ask students to write their top three choices of cultures to study and the names of three people they would like to work with. You can form groups based on this information to insure that you get each culture represented and control the groups for readiness, work habits, and personalities. Try to create at least one "high" group. Students are usually successful in attaining at least some of their own choices and are better motivated to begin.

Product Choices: The three product choices may determine how you design the groups as they require different strengths and abilities to complete. See "League of Ancient Civilizations." One group will present a diorama of how the culture lived. Information cards will describe the natural environment and explain how the culture used natural resources to survive. Another group will present a display board of information with more complete written material and pictures of the culture. These two groups make up the body of the "League" and they will present their projects to the whole class. The high group, if you have designed one, will research a culture's attributes and the circumstances of its decline. (This product involves higher level thinking skills and technology.) They will present their findings to the "League" and ask for the "League's" assistance in solving their problems. Discussions ensue, after which students will write their own idea for a solution or supported opinion on why they think the culture is doomed.

Assessments:

1. Comparative Essay (Individual) – addresses Geography Standards 1 and 5
2. Culture Research (Group, with individual accountability) – addresses History 2, Geography %
3. "League" report (individual) – addresses Geography 4 and 6, History 3

The Development of Cultures

Culture Development—Pretest

Name ________________

During the night, while you were sleeping, an alien spaceship hovered over your house and sucked you up with its energy beam. You awaken to find yourself in a strange land with about 50 other earthlings. All memory of earth has been erased from your mind. All you know is that you are cold and hungry, and so are the other 50 people. As you look around, you notice several objects. They are listed for you below. Write a description of how you would survive and organize your new society.

Climate Conditions: average daily temperature of 85 degrees Fahrenheit; nighttime temperatures drop to 40 degrees; 1/2" of rain falls every day at 3 o'clock in the afternoon; sunrise is at 6 a.m., sunset at 7 p.m.

Natural Landscape:

Low scrubby bushes connected to each other by thick vines
Tall palm trees bearing coconuts
Grassy areas with a green leafy plant attached to tough roots, like carrots
Monkeys and boa constrictors
Steep hills, with shallow caves
Streams from the hills which lead to a large lake

Mineral Resources:

Geodes, filled with purple amethysts
Diamonds

Questions to get you started:

What is your most important need?
How will you get it met and who will get it met first?
How will you use the objects around you for food, shelter, and clothing?
If you have free time, how will you fill it?
How will decisions that affect the whole group get made?

Option I

THE LEAGUE OF ANCIENT CIVILIZATIONS

You are an archaeologist and a member of the League of Ancient Civilizations. The League is an organization whose purpose is to promote peace among all peoples on the earth and prevent the destruction or disappearance of the earth's many cultures. As an archaeologist, you are to provide information to other League members to that they can make the proper decisions when conflicts between culture groups occur.

Specifically, you will be working with other archaeologists to create and maintain a museum that will hold artifacts representative of our ancient cultures. The life and times of your chosen culture will be displayed in a diorama, with written information explaining your culture's religion, government, and system of communication.

DETAILS

You will become an expert in the __________________ culture. You and your team of fellow archaeologists will conduct research of this culture on the following topics:

Location and Period
Environment (Climate and Natural Resources)
Food
Clothing
Housing/Buildings
Transportation
Communication
Arts/Leisure Activities
Religion/Government
Tools

Information cards will be created for each of these categories. You will build a diorama that will include models of the following elements:

The Natural Environment
Buildings
Clothing
Food

. . . and at least one of the following:

Religion/Government
Transportation
Arts/Leisure Activities
Communication

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DUE DATES

Research completed by ________________
Information cards written by_____________
Diorama completed by__________________

SUGGESTED MATERIALS FOR THE DIORAMA

(not a complete list)

- Colored clay
- Cloth (to make itty bitty pieces of clothing)
- Rocks, dirt, twigs
- Display box (pop can flats work well)
- Feathers
- Sugar cubes
- Cotton balls

HINTS FOR WORKING WITH YOUR TEAM

Divide the job so each of you is responsible for a part of it. (The League wants to give credit to each individual, so be sure to put your name on the individual information cards that you create.)

Discuss ideas for the end product – write down or sketch your ideas first, then share them with the whole group. Make sure everyone gets a chance to share.

Look for the good in everyone's ideas. Avoid words like "No" as in "That's not good."

Share information you find on someone else's topic. When you are researching, you will come across information that is useful to members of your team. So will they and you will want them to share!

Option II

THE LEAGUE OF ANCIENT CIVILIZATIONS

You are an archaeologist and a member of the League of Ancient Civilizations. The League is an organization whose purpose is to promote peace among all peoples on the earth and prevent the destruction or disappearance of the earth's many cultures. As an archaeologist, you are to provide information to other League members so that they can make the proper decisions when conflicts between culture groups occur.

Specifically, you will be working with other archaeologist to create and maintain a "visual library" that will hold display boards representing our ancient cultures. The life and times of your chosen culture will be displayed on a three-part board with written information explaining elements of your chose culture.

DETAILS

You will become an expert in the ___________________ culture. You and your team of fellow archaeologists will conduct research of this culture on the following topics:

Location and Period
Environment (Climate and Natural Resources)
Food
Clothing
Housing/Buildings
Transportation
Communication
Arts/Leisure Activities
Religion/Government
Tools

DUE DATES

Research completed by ________________
Display board completed by_____________

HINTS FOR WORKING WITH YOUR TEAM

Divide the job so each of you is responsible for a part of it. (The League wants to give credit to each individual, so be sure to put your name on the individual information cards that you create.)

Discuss ideas for the end product – write down or sketch your ideas first, then share them with the whole group. Make sure everyone gets a chance to share.

Look for the good in everyone's ideas. Avoid words like "No" as in "That's not good."

Share information you find on someone else's topic. When you are researching, you will come across information that is useful to members of your team. So will they and you will want them to share!

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Option III

THE LEAGUE OF ANCIENT CIVILIZATIONS

What makes a civilization? Why did some villages grow into great civilizations while others faded away? What make ancient civilizations unique? What did they share in common? What judgments can we make about the ancient civilizations? As a group, you will research and compare ancient civilizations via a multi-media experience. In a League of Ancient Civilizations summit meeting, you will present the case of the great empires and cultures of the Western Hemisphere for review by your peers, asking the League to intervene to halt the decline of the civilization.

PART ONE: REVIEW OF ANCIENT CIVILIZATIONS

During class time you will review ancient cultures through a variety of resources. Resources may include:

- Where in Time is Carmen Sandiego?
- TimeLiner Pre- and Ancient History data disk
- Odyssey of Discovery: Geography
- A variety of printed materials

Upon completion of your resource review, initiate a discussion about your observations, and about the fates of these civilizations. What happened to these titanic achievements of culture, politics, power, and economics? Why didn't they survive? Could their decline have been prevented?

PART TWO: IN-DEPTH RESEARCH

As a group, you will focus on civilization of the Western Hemisphere, collecting detailed information and preparing to "tell a story" of this culture. Try to formulate pictures of decline of the civilization and draft solutions that could have helped them survive.

To help you complete your research, you will complete fields in a database. (The database can be found on the *Middle School Connections* CD).

You will find a wealth of information in such resources as:

- Eyewitness History of the World
- Grolier Multimedia Encyclopedia
- Microsoft Bookshelf
- Internet resources
- The LIBRARY!

As you explore these resources, save pictures, text, sounds, and other information for use in your timeline.

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PART THREE: CREATING A PRESENTATION

You will produce a HyperStudio stack or a ClarisWorks slide show to present your civilization. What was life like for its citizens? How did the civilization interact with the people around it?

Use TimeLiner to add a timeline that describes the entire arc of your civilization's history. Be sure to describe the factors that contributed to your civilization's decline and disappearance, and to suggest a range of measures that could have been taken to ensure its survival and prosperity.

PART FOUR: THE LEAGUE OF ANCIENT CIVILIZATIONS

When the presentation is complete, you will be asked to present your finding to the League of Ancient Civilizations. In making the presentation, each group member should play a specific role – emperor, serf, slave or peasant farmer, philosopher, high priest or priestess, noble, etc. All of these characters are on a mission to plead for intervention by the League. One student might choose to be a high priest from the Aztec civilization to explain the need for human sacrifice. You must present reasons why your civilization should be saved and the measures of the League must take to save it. For example, the Aztecs might ask the League to ally with them against Cortes and his forces. At the end of the presentations, the League member will cast silent ballots to decide the fate of your civilization.

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Poetry Project
Pre-assessment
Grade 6

My interest in poetry:

Very interested _____
Somewhat interested _____
I have a low level of interest ✓

I would like my final poetry project to include:

Hyperstudio
NO WRITING POEMS!
Research a Poet
No illustration
Compare/contrast eras

Poetry Project
Pre-assessment

Survey 1: The Beginning

Name:
Date:

1. Do you read poetry? Why or why not?
   No, because it is boring and I think it is bad because they are mostly short.

2. Have you ever written any poetry? Did you enjoy writing poetry? Why or why not?
   Yes, I have written it, no, I didn't like it because it is boring

3. What do you know about poetry?
   I know that some of them rhyme and on some you can only have a certain amount of words.

4. What would you like to learn about poetry?
   Why are there different kinds? Who invented poetry?

5. Do you have any favorite poems or poets?
   No

Define: (or give example)

metaphor - the opposite

simile - the same as

stanza - ?

verse - one part of a poem

alliteration - ?

Poetry Project
Post-assessment

Survey 2: The End

1. What did you learn about poetry?

   I learned that alliteration can be really effective in poetry. I also learned that not all poems rhyme and that poems can be riddles.

2. What did you learn about yourself through poetry?

   I learned that even though that I don't like it, I can write poems.

3. What was your favorite part of the poetry project?

   My favorite part was that I got to know that not all poets have the same subjects.

4. What is your best piece? Why?

   Varnack and Lolly: it was the only one that I wrote

5. What would you change about the project or your poetry? Why?

   I would have liked to have had pictures of the poets because it would have been interesting to see what they look like.

6. Do you have any favorite poems or poets?

   NO

Define:

metaphor - example: When he is starving, he is like a wild pig that hasn't eaten in one week.

simile - a word: like, as, etc.

stanza - 5 lines in poetry; it is like a paragraph

verse - a line in poetry

alliteration - a sentence verse in poetry where almost all of the words start with the same letter

Endangered Creature "The Frizard"

Investigation Report
and
Solution Proposal

March 27, 1998

Submitted by

Investigation Report

The Frizard has thrived for many years in the subtropical climate of Peace Land (locate at 30° N Latitude and 75° W Longitude). Due to many factors (explained below), the numbers of this species have become critically low. In 1993, there were approximately 3,000 Frizards inhabiting Peace Land. Our recent studies show that the population has dangerously dropped to less than 500.

The problem of the endangerment of the Frizard first surfaced when the predators of the Frizard (rats and large snakes) were rapidly declining in population.

Our investigation has taken place over the last twelve months in all areas of Peace Land by twenty scientists trained for the Frizard. It has been forced from its habitat, making survival difficult and often impossible.

Our investigation also proved that intentional killing has added to the problem. There is a great increase in poachers trapping and killing the Frizard for its beautiful skin. (The popularity of the Frizard's decorative skin in the making of shoes and handbags has grown greatly in foreign countries.)

Accidental killing has been a fourth factor in the killing off of the Frizard species. The great increase of the insect population due to global warming has caused farmers all over the continent to use pesticides which are not only killing much of the Frizard's food supply, but are also contaminating the Frizard water supply.

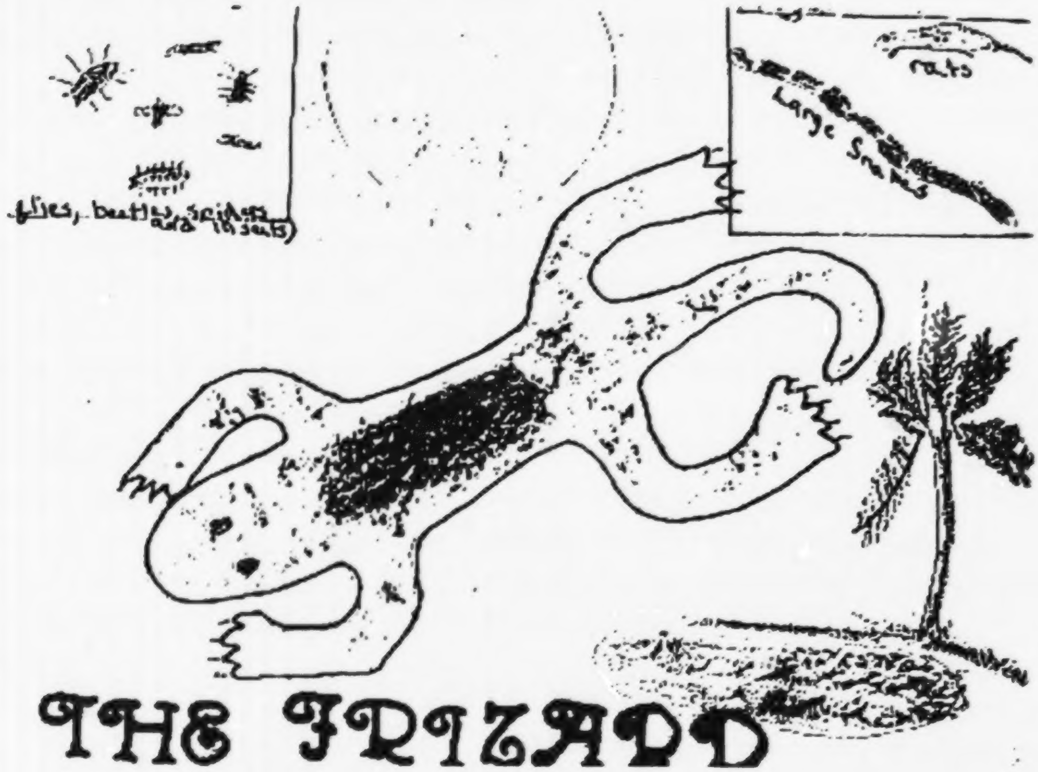
Solution Proposal

Due to the Frizard species rapidly becoming endangered, our Investigative Team proposes the following strategies:

1. Halt the destruction of the wetlands by imposing a large fine on the farmers draining the marshes in South Peace Land.
2. Pass a law to stop further deforestation and resort development of the land in North Peace Land by Ecstasy Development Corporation and other future developers.
3. Enforce strict laws to end poaching of the Frizard in all of Peace Land.
4. Ban the use of harmful pesticides, which are greatly decreasing the Frizard's insect food supply and contaminating its water supply.
5. Begin a captive breeding program at the Peace Land Zoo to increase

the population of the Frizard. (We predict the extinction of the Frizard in one year, if drastic measures are not taken immediately.)

Our Investigative Team believes that these solutions will bring the population of the Frizard species back to normal levels.


flies, beetles, spiders and insects)
rats
Large Snakes

THE FRIZADD

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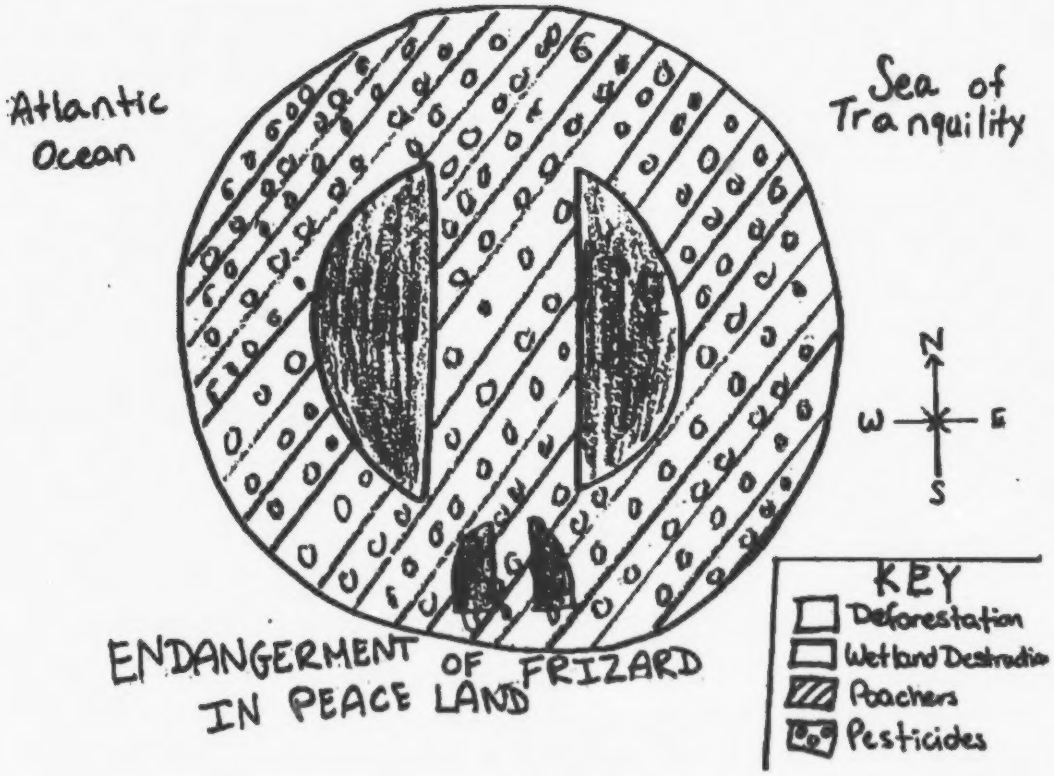
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ENDANGERMENT OF FRIZARD IN PEACE LAND

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Research Monograph

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